

Role of the cat-human bond in supporting the tutors' mental health

Papel da ligação gato-humano no apoio da saúde mental dos tutores

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ABSTRACT

Historically, domestic cats had different roles in societies based on different beliefs, which have shaped their relationships with humans over the years. Although these animals have conquered their space in modern society as companion animals, little is known about the species' inherent behaviours and preferences. Our main goal is to present an integrative literature review to understand the psychosomatic effects of the coexistence between humans and the domestic cat (*Felis catus*) in the communal space, especially considering mental health as a critical survival component. The study analysed feline behaviour, cognitive capacity, the establishment of emotional bonds with tutors, and the influence of this relationship on family composition. The results demonstrated the cat's ability in communicating, understand the surrounding environment, and develop unique cat-human bounds. Despite the perception concerning the cat's preference for solitude, domestic cats seek animal or human companionship out of necessity or affinity. Our results showed that this bond, initially seen as practical, led to a human-cat emotional rapprochement that can improve human mental well-being and become relief from social isolation demanded by the COVID-19 pandemic. The subtle feline communication through sensory characteristics such as caressing fur and the sound of a cat purring reinforces the benefits of inquiring and understanding mutual communication. Although it does not represent a medical treatment and should not be used for this purpose, their company is positive, appreciated, and related to the increase of happiness or decrease of the anxiety, improving human well-being.

Keywords: Pandemic, Loneliness, Human-feline interactions, feline behaviour.

RESUMO

Historicamente, os gatos domésticos tiveram diferentes papéis nas sociedades com base em diferentes crenças, que moldaram suas relações com os humanos ao longo dos anos. Embora esses animais tenham conquistado seu espaço na sociedade moderna como animais de companhia, pouco se sabe sobre os comportamentos e preferências inerentes à espécie. Nosso principal objetivo é apresentar uma revisão integrativa da literatura para compreender os efeitos psicossomáticos da convivência entre humanos e o gato doméstico (*Felis catus*) no espaço comunitário, especialmente considerando a saúde mental como um componente crítico de sobrevivência. O estudo analisou o comportamento felino, a capacidade cognitiva, o estabelecimento de vínculos afetivos com os tutores e a influência dessa relação na composição familiar. Os resultados demonstraram a capacidade do gato em se comunicar, entender o ambiente ao redor e desenvolver limites únicos entre humanos e gatos. Apesar da percepção sobre a preferência do gato pela solidão, os gatos domésticos buscam companhia animal ou humana por necessidade ou afinidade. Nossos resultados mostraram que esse vínculo, inicialmente visto como prático, levou a uma aproximação emocional humano-gato que pode melhorar o bem-estar mental humano e se tornar um alívio do isolamento social exigido pela pandemia de COVID-19. A sutil comunicação felina por meio de características sensoriais como acariciar o pelo e o som de um gato ronronando reforça os benefícios de indagar e entender a comunicação mútua. Embora não represente um tratamento médico e não deva ser utilizado para esse fim, sua companhia é positiva, apreciada e relacionada ao aumento da felicidade ou diminuição da ansiedade, melhorando o bem-estar humano.

Palavras-chave: Pandemia, Solidão, Interações humano-felino, Comportamento felino.

1 INTRODUCTION

Thousands of people have been forced to deal with loneliness, uncertainties, anxiety, and fear of the unknown in the modern world context. However, humanity is collectivist and needs close social contact. Changes in people's lifestyles during the COVID-19 pandemic presented an evident impact on individual behaviours, with an increase in alcohol and cigarette consumption, exacerbated sedentary lifestyle, and a substantial worsening in eating habits (Ferrante et al., 2020). It also presented a direct psychological impact. After a few weeks of the pandemic's beginning, the population in China showed an increase in depression, anxiety, and indignation, while presenting a decrease in the positive feelings necessary to life continuation (Li et al., 2020).

The world population traditionally shares the communal space with animals. In addition to the resources of interest provided by this exchange, domestication was a co-evolutionary process that allowed a positive coexistence of humans with dogs and cats (Pongrácz and Szapu, 2018). The domestic cat found space in human habits and improved this relationship over time, despite not presenting the desired level of submission (Serpell, 2005). The cats' role in societies was changing over history, going from deification in Antiquity and exacerbated negative mysticism in the Middle Ages to a partial acceptance after the Black Plague in Europe (Serpell, 2000; Beaver, 2003; Lockwood, 2005). In the modern world, cats can represent different symbols according to local culture, varying from an evil element associated with the bad luck to utilitarianism.

Despite the negative symbology, the cats conquered many people due to their personalities and affection display. A companion animal can reduce stress and anxiety, elevate mood, and even lower blood pressure levels (Friedmann et al., 2007). The benefits of the human-cat relationship are unique, mutualistic, and essential when psychological illnesses related to depression and loneliness are present in our reality. The purpose of this integrative literature review is to understand the human psychosomatic impacts of sharing communal space with animals, particularly domestic cats.

2 THE MODERN HUMAN-CAT RELATIONSHIP CONTRADICTION

Loneliness is a qualitative and quantitative two-dimensional concept that adds to a lack of meaning in life and the development of unwanted feelings (Peplau and Perlman, 1985). Paradoxically, the individual who experiences loneliness usually lacks the will or wisdom to keep relationships, generating a secondary affective lack of intimacy (Pinheiro and Tamayo, 1984). As a concept, loneliness is not a disease but a dimension in which the individual existential aspect can evolve into depression by getting more profound and not receiving social help (Vieira, 2015).

Among social groups, young people seem to be more likely to experience loneliness (Bérubé and Purushottam, 1998). The Covid-19 pandemic highlighted the perception that social isolation

cannot be kept long term, leading to the loss of the ability to establish satisfactory human relationships. Thus, with social distancing over time, the individual may feel unable to leave the state of emotional loneliness even with a social support network.

Turner (1991) was the first to report a naturally formed interspecific relationship between women living alone and cats. However, Turner and Gerulf (2001) demonstrated that cats with depressive symptoms keep their distance from possible human interactions. Hell (2006) also showed that cats were incapable of keeping healthy relationships while experiencing these symptoms, developing a natural tendency to isolation. In contrast, people with depressive disorders are remarkably willing to interact to be understood (Hayhurst et al., 1997). Mental pain is not noticed as physical pain, and previous feelings will deepen over time.

3 FELINE PERSONALITIES: BEHAVIORAL MYSTICISM

The emergence of agriculture and the subsequent emergence of rodents due to the rudimentary storage of the crops made the cats' introduction into the family environment possible. Cats gradually assumed affectionate roles within the family nucleus since they started to be seen as a helpful tool with mutual benefit. Consequently, the co-evolution led to the cats' adaptation to human coexistence (Melo, 2008). Thus, cats started to leave their subservient role, getting closer to people so that their personalities could be noticed and individualised.

For Gosling (2001), feline personality can be defined as a consistent behaviour pattern in the long term, which can be influenced throughout the animal's life. This study was referenced by the feline tutors, which indicated that unique elements could determine these animals' personalities. Feline temperament is a hereditary characteristic where tendencies appear early and last throughout the animal's life, assuming the personality's basis (Gosling, 2008). Thus, temperament can describe the animal's biological arrangement (Gosling, 2001; Gosling, 2008).

Several authors have studied feline individuality to determine its origin, development, and maturation. Karsh and Turner (2014) identified cats with naturally shy personalities despite socialising and having affective bonds. Feaver et al. (1986) differentiated cats with active and aggressive behaviour, shy and nervous, and confident and calm. When submitted to the company of unknown people, the feline reaction can be individualised into confident/friendly and shy/fearful (Meier and Turner, 1985; Mertens, 1993).

Feaver et al. (1986) described distinct cats' personalities in a colony, while Durr and Smith (1997) indicated a linear response of the cats' behaviour even with environmental changes, indicating that environmental stability is not determinant to keep the individual feline responses' stability. In this way, individuality is the temperament expression of a hereditary character.

Personality development in the early stages of the cat's life occurs after temperament changes due to environmental conditions. For Turner et al. (1986) four different personalities can be formed between 4 and 24 months. Feaver et al. (1986) produced similar studies regarding the quantification of cats' personalities. The human-cat connection is so strong that cats presented less tense and anxious personalities when the owner established open relationships. In contrast, owners with neuroticism contributed to a feline personality dedicated to social-emotional support and, consequently, could offer a less secure basis when compared to animals whose owners demonstrate a higher receptiveness to interaction. Cats with receptive tutors are considered companion pets for fun and affection, while neuroticism leads to a relationship of emotional support with the cat.

4 THE FELINE SENSITIVITY TOWARDS HUMAN SIGNS

Cats respond to human interactions, but these reactions were only recently identified. Replicating the same gestures of the tutors and staring are among the mechanisms developed to communicate. Despite repeating the movements performed by humans, the act of staring is not correlated with a means of wanting attention, even when the animals get a reward (Miklósi et al., 2005).

It is not needed to ask before starting a human-feline interaction, but some behaviours and moods must be understood and respected. Turner and Gerulf (2001) conducted a behavioural experiment regarding feline responses at different times. The animal was not compelled to respond when the human intended to interact, assuming a feeling of anxiety and/or the need to touch the animal. However, the more the human personified depression and demonstrated inactivity, the more compelled the animal was to start affective bond interactions.

Merola et al. (2015) evaluated if cats can assess their guardian's emotional state. Cats with a natural safety record were used without altering their behaviour with an environmental change or in the presence of unknown humans. Four tests were performed using a fan, where the tutor was facing the moving propellers and reacting their animals in different ways: 1) the fan is turned on, but the tutor keeps a neutral facial expression; 2) there is positive/negative human vocalisation towards the object, added to the expression of happiness while the vocalisation occurs, and alternated the gaze fixation between the cat and the propellers; 3) the tutor vocalises and uses expressions of happiness towards the object, besides approaching and actively interacting with the propellers; and 4) the fan is turned off, but the tutor remains actively interacting with the object, maintaining the vocalisation and alternating the gaze fixation. Most cats (79%) kept looking at their guardians and the object that called their attention, and 59% of the animals remained silent and in a state of observation. Cats seek their guardians in unfamiliar situations and can adjust their behaviour accordingly. Instead, it

is more likely that cats search for learning and see responsible tutoring as a source of security in the face of an unusual situation.

Feline behaviour differs in humans' presence. Edward et al. (2007) observed sharp differences in the domestic cat natural behaviour in its tutors and strangers' presence. Cats preferred to keep recreational activities and games with their tutors and only developed exploratory activities in their presence. Cats with tutors with extended outside life journeys tend to stay close to the door when alone. Ainsworth et al. (1970) indicated that the social bonds created between a cat and its tutor could be so deep that the animal would experience pain and separation anxiety. Rieger and Turner (1999) indicated that cats change their behaviour influenced by human mood. The level of separation syndrome developed by some animals will be directly related to the level of affection built throughout their lives (*Schwartz et al., 2022*).

Carr et al. (2019) evaluated the animal companionship impact during the period of social loss. The feeling of loss triggers symptomatic conditions correlated with depression and loneliness, both common feelings developed during the pandemic. The cats' presence mitigated feelings of pain and negativity present in depression. The impact of loneliness in groups without animals was greater and statistically significant ($p < .01$). Zasloff and Kid. (1994) found that the feeling of isolation is diminished in students sharing life with an animal, and a sense of companionship and feeling needed is developed when a connection is established.

In response to the human's urgent affection needs, cats have shown a sensitivity to know when to prioritise their peculiar affection, such as rubbing the head or flanks in their tutors (Karsh and Turner, 2014; Mertens, 1991). Due to current tendencies towards distancing or the desired individual family conformation, cats demonstrate neutral or positive behaviours to offer emotional support without saturation as companions in loneliness (Goodwin and Bradshaw, 1998).

5 SYMBIOTIC RELATIONSHIP: SOCIAL NETWORK AND RELATIONSHIP

Domestic cats demonstrate an enormous adaptive capacity to communicate and understand the surrounding environment and their relationship with humans (Bradshaw and Limond, 1997). When living in social groups, cats seek food, shelter, and companions (Liberg et al., 2000) Despite the reputation of being "independent," cats will preferably seek company and demonstrate the most diverse intraspecific behaviours and interspecific relationships. Karsh and Tunner (2014) proposed that kittens typically have a successful affective union between two and seven weeks of age. Collard (1967) indicated that cats exposed to many humans from an early age would grow bolder compared to little handled animals when young.

Edwards et al. (2007) evaluated the differences in cats' behaviour in the presence of their tutors and strangers. They found that cats only engaged in playful or exploratory activities with known people. The cats developed alert behaviour and spent more time near the door when the perception of the surroundings encompassed other people or when they were alone. These reactions can be interpreted as subtle signs of affection by the cat. The insistence on socialising, when well-received, represents a significant improvement and demonstrates reliable support to the feline. The human-cat relationship is based on socialisation time and human affection, mainly considering shelter animals (Albert and Anderson, 1997). However, they generally appear as complementary figures (Stammach and Turner, 1999).

6 DISCUSSION

As a multifaceted feeling of human psychology, loneliness is divided into social and emotional loneliness (Weiss, 1973). Both types of loneliness are human interfaces that cannot be isolated. In addition, feline independence triggers a feeling of great satisfaction when being loved, as it generates the feeling of deserving feline love. Weiss (1973) described social loneliness as a lack of integration. Although this fulfilment cannot occur in times of social distancing, tutoring a feline can reduce the feeling of loneliness by promoting this human-cat affective bond.

Cats do not obey the critical sense of intention observed in the collective human mindset. But, Merola et al. (2015) reproduced an experiment involving cat's attention and the result only corroborates where their thoughts are most orientated when it has to make a choice. The act of staring at the tutor is understood by Miklósi et al. (2005) as a way to seek assistance to solve a problem that the cat does not understand. But, nowadays, the idea of an independent feline with a complete sense of the world is outdated.

Branson et al. (2017) measured how the intensity of social isolation affected the feeling of loneliness and found that cat-tutors presented a more positive outcome than dog-tutors. Although they did not discuss the possible reasons for this pattern, the explanation could be the intrinsic animal nature. Feline personalities are not attributable or comparable to humans but are consistent and present variable temperaments (Wynne and Udell, 2013)

When an affective bond is formed, the animal behaves to promote closeness (Gosling, 2008; Carr et al., 2019; Branson et al., 2017). However, cats can establish this connection by keeping both parties comfortable with aloneness. Cats can understand signals emitted by human humour and use these tips to alleviate human pain through staring, responsive vocalisation, and union. As collectivist animals by nature, they can instinctively use this approach to get food, shelter, or social attention. However, it is undeniable the significance of this interaction with humans who live alone or during

times of pandemic, where social isolation and fear have become responsible for the decrease in the mental health's organic protection.

Although cats do not have the therapeutic effect essential to physical healing and cannot prevent the deepening of a mental condition, they can be adjuvants and minimise the consequences of anxiety and solitude. The declining mental health is not a choice but keeping a good life, including sharing it with a cat, may be the key to facilitating the transition to happiness. Cats become more than animals, they become family members and gain affection for this social achievement.

7 CONCLUDING REMARKS

We conclude that the cat's refined and subtle perception is sensitive to changes in the human for whom it has affection's mood, considering loneliness, isolation, and depression. In such cases, the cats will instinctively seek a higher approximation, allow the touch or even initiate the typical feline affection behaviour - rubbing the human's head, flank, and tail.

The feline's love and affection are eternal goods that represent a mutual benefit when cultivated correctly, even when we know that cats can assume utilitarian functions within the environment they live. However, animals improve the quality of life, decreasing stress levels and making it easier to deal with crises throughout life. Their importance in the niche they are in must be greater than just a preset purpose.

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