



Impact of COVID-19 lockdown period on companion animal health in Algeria

[*Impacto do período de lockdown da COVID-19 na saúde dos animais de companhia na Argélia*]

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ABSTRACT

The COVID-19 pandemic and the measures established by governments to protect populations have caused significant harm to humanity, not only regarding public health but also in terms of economic and social welfare. This study aims to assess the health status and behavior of pets during the total lockdown period in Algeria from March to June 2020. An online questionnaire consisting of 20 questions was published. A total of 200 pet owners across various departments participated. The lockdown had a negative impact on the physical health of 19.5% of individuals, with weight gain, allergies, and diabetes being predominant (51.8%, 27.7%, and 20.5%, respectively). 38.5% of cases report behavioral disorders, with hyper attachment, aggressiveness, and disobedience being predominant (47.3%, 27.6%, and 18.4%, respectively). The study helped estimate the negative impact of the lockdown on the physical and psychological health of animals. This information will aid in preventing similar damage in case of future pandemics or epidemics.

Keywords: COVID-19, lockdown, behavior, pets, Algeria

RESUMO

A pandemia de COVID-19 e as medidas estabelecidas pelos governos para proteger as populações causaram danos significativos à humanidade, não apenas em relação à saúde pública, mas também em termos de bem-estar econômico e social. Este estudo tem como objetivo avaliar o estado de saúde e o comportamento dos animais de estimação durante o período de lockdown total na Argélia, de março a junho de 2020. Foi publicado um questionário on-line composto por 20 perguntas. Um total de 200 proprietários de animais de estimação de vários departamentos participaram. O confinamento teve um impacto negativo na saúde física de 19,5% dos indivíduos, com predominância de ganho de peso, alergias e diabetes (51,8%, 27,7% e 20,5%, respectivamente). 38,5% dos casos relatam distúrbios comportamentais, com predominância de hiperapego, agressividade e desobediência (47,3%, 27,6% e 18,4%, respectivamente). O estudo ajudou a estimar o impacto negativo do lockdown na saúde física e psicológica dos animais. Essas informações ajudarão a evitar danos semelhantes em caso de futuras pandemias ou epidemias.

Palavras-chave: COVID-19, lockdown, comportamento, animais de estimação, Argélia

INTRODUCTION

At the end of 2019, an unknown group of pneumonia cases appeared in Wuhan, Hubei Province, China (McIntosh, 2020, 2020). The inoculation of respiratory samples into epithelial cells of the human respiratory system led to the isolation of a new respiratory virus, which was identified by genomic analysis as a novel SARS-CoV-related coronavirus and therefore named

severe acute respiratory syndrome coronavirus 2 (Shabir and Aijaz, 2020). SARS-CoV-2 is highly contagious and spreads rapidly around the world (Vicente *et al.*, 2022). On 11 March 2020, the World Health Organization (WHO) declared COVID-19 a global pandemic (WHO, 2020).

Algeria, like other countries around the world, has been affected by the respiratory disease pandemic (Lounis, 2021). The first case was

reported on February 25th, 2020, when an Italian national who arrived in Algeria on February 17th tested positive (Madani *et al.*, 2020). After the detection of the first cases, the Algerian government, along with other countries, implemented preventive measures such as social distancing to limit the spread of the virus. These measures included international travel restrictions, limitations on public meetings, isolation, quarantine, preventive campaigns, and containment efforts (Lounis, 2021). On March 23rd, with a total of 230 cases (125 of which were in Blida) and 17 deaths, Algerian authorities announced the closure of the Blida region, partial containment measures for other departments, and a prohibition on all public meetings. Additionally, party halls and family celebrations were closed, and all businesses (except for food stores) throughout the national territory were ordered to close. Social distancing was required in all establishments open to the public (Lounis, 2021).

Humans share this planet with a diverse array of animal species, comprising vast and complex interaction systems. Thus, even a small change in one's life can have far-reaching effects. During containment periods, companion animals may help their owners cope with the consequences (Ratschen *et al.*, 2020). The COVID-19 pandemic has dramatically and unexpectedly disrupted society, and measures adopted to reduce health emergencies - such as restrictive measures - have completely altered human habits and routines (Shoesmith *et al.*, 2021). Several studies have demonstrated the detrimental impact of COVID-19 on human and animal behavior and welfare. Therefore, the present study aimed to assess pets' health and behavior during total containment in Algeria, through a questionnaire administered to dog and cat owners.

MATERIALS AND METHODS

We created a questionnaire in French using 'Google Forms' to gather information from participants about the impacts of COVID-19 containment on the health and behavior of their pets. We tested the questionnaire for two weeks to ensure its comprehensibility and accessibility. We retained 20 questions primarily using a choice of simple or multiple answers to facilitate data collection. The questionnaire was structured in sections to provide clarity in responses. The

questionnaire was designed to be anonymous, and a consent form was presented at the beginning.

Our representative population in Algeria consisted of dog and cat owners. The questionnaire was published on social media platforms such as Facebook vet groups and forums for six months, from May 2021 to November 2021. Subsequently, the collected data was entered into STATISTICA software (version 11.0) for analysis.

Chi-squared test was used to compare observed values and establish significant differences, with a probability level of less than 5% considered statistically significant. Fisher's exact test was employed for calculating probabilities in cases of small sample sizes.

RESULTS

Table 1 lists the physical and psychological health evaluation results of pets before and after the containment period in Algeria.

Initially, 65.5% of participants owned cats, and 34.5% owned dogs, as shown by the statistical analysis indicating a significant difference ($p < 0.05$). Cats are more popular and preferred in the Algerian community, which justifies their higher domestication rate. During the containment period, 47% of participants reported changes in routine, including increased meals (56.3%) and changes in sleep patterns (43.7%), as indicated by the statistical analysis, which demonstrates significant differences ($p < 0.05$). Furthermore, 67.3% of respondents who were unable to find their habitual pet feed changed their pet's diet completely, while 32.7% resorted to available options in markets. In addition, 27% of the participants reported that their pets' physical health deteriorated due to confinement. Over half (51.8%) of the participants noticed weight gain in their pets, whereas 27.7% observed allergic reactions. Moreover, 20.5% noticed symptoms of diabetes, but the difference was not significant ($p > 0.05$). Additionally, 38% of the participants noticed behavioral changes in their pets. These changes were mainly characterized by hyper attachment (47.3%), aggressiveness (27.6%), disobedience (18.4%), and obedience (6.7%). The statistical analysis showed significant differences.

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Table 1. Evaluation of pets' physical and psychological health during containment

Pet	Dog	Cat	Total	p-value
Number	69 (34.5%)	131 (65.5%)	200	0.29
Routine changes				0.04
Yes	29	65	94 (47%)	
No	40	66	106 (53%)	
How?				0.52
Increased numbers of meals	12	41	53 (56.3%)	
Change in sleep time and duration	17	24	41 (43.7%)	
Food availability				0.20
Yes	54	97	151 (75.5%)	
No	15	34	49 (24.5%)	
Alternative				0.03
Change of Diet	12	21	33 (67.3%)	
Available marks	3	13	16 (32.7%)	
Influence on physical health				0.04
Yes	25	29	54 (27%)	
No	44	102	146 (73%)	
How?				0.25
Weight gain	13	15	28 (51.8%)	
Allergy	9	6	15 (27.7%)	
Diabetes	3	8	11 (20.5%)	
Influence on pet's behavior				2.9
Yes	49	27	76 (38%)	
No	20	104	124 (62%)	
How?				0.01
Disobedience	14	0	14 (18.4%)	
Hyper attachment	19	17	36 (47.3%)	
Obedience	2	3	5 (6.7%)	
Aggressiveness	14	7	21 (27.6%)	
Physical health after deconfinement				0.04
Yes	61	100	161 (80.5%)	
No	8	31	39 (19.5%)	
How?				0.50
Disease	2	6	8 (20.5%)	
Weight loss	1	10	11 (28.2%)	
Weight gain	5	15	20 (51.3%)	
Pet's behavior after deconfinement				0.16
Yes	41	112	153 (61.5%)	
No	28	19	47 (38.5%)	
How?				0.24
Aggressiveness with its owner	7	1	8 (17%)	
Fear of walking alone	6	5	11(23.4%)	
Attachment	15	13	28 (60%)	

After the containment period, 19.5% of participants observed physical health problems in their animals, primarily due to the emergence of

various diseases. Additionally, respondents observed changes in animal behavior, including increased

38.5% of in animal attachment

(59.5%), aggression toward owners (17.1%), and fear of being alone (23.4%). However, the statistical analysis indicates no significant difference ($p>0.05$).

DISCUSSION AND CONCLUSION

Since the first report of a dog testing positive for SARS-CoV-2 in Hong Kong via RT-PCR, many inquiries have been made about the possible role of pets in transmitting the COVID-19 virus to humans (WOAH, 2022). Consequently, a few people had considered abandoning their pets; however, the majority chose to curtail their cats' and dogs' outings and instead spend more time with them at home. During times of great adversity and stress, such as those induced by COVID-19, pets can provide people with a source of non-judgmental support, stress-reducing companionship, a positive outlet for joy and entertainment, as well as a secure haven for both emotional vulnerability and physical contact (Jalongo, 2021). A rise in pet adoption rates has been seen during the pandemic, as people seek ways to deal with the psychological stress of reduced human interaction (Tan *et al.*, 2021).

COVID-19 had a significant impact on the daily routines of households and their resident animals. This was true for a considerable number of owners who observed substantial changes in their pets' habits, including an increasing number of meals, as well as longer periods of daily sleep. This is most likely the cause of the observed increase in overweight among pets due to excessive dietary consumption and insufficient energy utilization, which results in a positive energy balance (German, 2006). This could also be linked to stressful situations arising from life changes, as possible factors that lead to obesity in cats include stress, anxiety and depression (German, 2006). This is most likely the reason for the cases of diabetes reported in both cats and dogs because obesity, which leads to insulin resistance, is one of the primary contributing factors to its development (Nelson and Reusch, 2014).

On the behavioral side, our participants noticed hyper attachment and aggressiveness in their cats, because environmental changes in cats are the most common stressors that could affect their well-being and trigger some behavioral changes (Amat *et al.*, 2015), on the contrary, Riggio *et al.*

(2022) have reported a positive behavioral influence of COVID-19 containment. In dogs, stressful conditions lead to the development of attention and obsessive behavior (Applebaum *et al.*, 2020), which is the most likely reason for the reported behaviors of aggression and disobedience.

Attitudes developed during the period of confinement were maintained after it ended, with attachment to owners and aggressiveness towards other people and animals being most pronounced in our participants, due to reduced socialization after a long period of isolation (Aloff, 2005). Lack of vaccination and interruption of veterinary care were the most likely causes of health problems that occurred after the period of quarantine.

Our study allowed us to assess the health situation of companion animals during and after the containment of COVID-19 in Algeria, and we concluded that companion animals were not exempt from the adverse effects of this pandemic. Emerging diseases continue to pose problems for both human and animal health, so we should improve coordination between the animal and human health sectors in a One Health approach.

REFERENCES

- ALOFF, B. *Canine body language: a photographic guide interpreting the native language of the domestic dog*. [Wenatchee]: Dogwise Publishing, 2005. 370p.
- AMAT, M.; CAMPS, T.; MANTECA, X. Stress in owned cats: behavioural changes and welfare implications. *J. Feline Med. Sur.*, v.18, v.577-586, 2015.
- APPLEBAUM, J.W.; TOMLINSON, C.A.; MATIJCZAK, A. *et al.* The concerns, difficulties, and stressors of caring for pets during COVID-19: results from a sarge survey of U.S. pet owners. *Animals*, v.10, p.1882, 2020.
- GERMAN, J. The growing problem of obesity in dogs and cats. *J. Nut.*, v.136, p.1940-1946, 2006.
- JALONGO, M.R. Pet keeping in the time of COVID-19: the canine and feline companions of young children. *Early Child Educ. J.*, v.9, p.1-11, 2021.

- LOUNIS, M. COVID-19 in Algeria: Chronology and evaluation of preventive actions. *Elect. J. Med. Educ. Technol.*, v.13, p.1, 2021.
- MADANI, A.; BOUTEBAL, S.E.; BRYANT, C.R. The Psychological Impact of Confinement Linked to the Coronavirus Epidemic COVID-19 in Algeri. *Int. J. Env. Res. Public Health*, v.17, p.3604, 2020.
- MCLNTOSH, K. Coronavirus disease. 2019. Available in: <https://www.uptodate.com.conricyt.remotexs.co/contents/coronavirus-disease-2019-covid-19/> Accessed in: 21 Aug. 2022.
- NELSON, R.; REUSCH, C. Classification and etiology of diabetes in dogs and cats. *J. Endocrinol.*, v.222, p.1-9, 2014.
- RATSCHEN, E.; SHOESMITH, E.; SHAHAB, L. *et al.* Human-animal relationships and interactions during the Covid-19 containment phase in the UK: investigating links with mental health and loneliness. *PLoS ONE*, v.15, p.e0239397, 2020.
- RİGGİO, G.; BORRELLI, C.; PIOTTI, P. *et al.* Cat-owner relationship and cat behaviour: effects of the COVID-19 Confinement and Implications for Feline Management. *Vet. Sci.*, v.18, p.369, 2022.
- SHABİR, A.L.; AIJAZ, A. COVID-19 pandemic – an African perspective. *Emerg. Microbes Infect.*, v.9, p.1300-1308, 2020.
- SHOESMITH, E.; SHAHAB, L.; KALE, D. *et al.* The influence of human–animal interactions on mental and physical health during the first COVID-19 containment phase in the U.K.: a qualitative exploration. *Int. J. Environ. Res. Public Health*, v.18, p.976, 2021.
- TAN, J.; FUNG, W.; WEN, B. *et al.* Association between pet ownership and physical activity and mental health during the COVID-19 ‘‘ Circuit breaker’’ in Singapore. *One Health*, v.13, p.100343, 2021.
- VİCENTE, J.; VELASCO, A.L.; CAMPO, D.J. *et al.* Physical activity and COVID-19. The basis for art efficient intervention in times of COVID-19 pandemic. *Physiol. Behav.*, v.1, p.244, 2022.
- WHO director-general’s opening remarks at the media briefing on COVID-19. 2020. Available in: <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>. Accessed in: 11 Mar. 2020.
- WORLD Organisation for Animal Health (WOAH): guidance on working with farmed animals of species susceptible to infection with SARS-CoV2. 2022. Available in: https://www.woah.org/fileadmin/Home/MM/Draft_OIE_Guidance_farmed_animals_cleanMS05.11.pdf. Accessed in: 25 Sep. 2022.