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Using Artificial Intelligence to Measure Chronic Psychological Stress and Modify Behavior in Canines and Felines: Implications for Human Use

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Pets can both relieve and exacerbate human stress; humans can do the same for pets (Friedmann 2011, Young 2020). When companion animals experience chronic psychological stress, they become more prone to socially unacceptable behaviors, poor prognosis, pet euthanasia and worsened owner mental health (Dodman 2018, Pegram 2021). Such stress is also associated with medical symptoms like diarrhea and incontinence, and with conditions like atopic dermatitis (Horwitz 2018). These traits make the companion animal’s stress experience a useful, interdependent model for humans.

If pet parents and clinicians have access to convenient, effective screening tools for stress, earlier and more affordable behavioral interventions can be conducted. Artificial intelligence (AI) makes screening interventions for stress-related conditions possible. Clinicians routinely collect data about stress in behavioral histories, but they have had limited ways of measuring it. AI offers new, efficient ways to quantify chronic psychological stress and understand its impact.

Our team created Pet Happiness, an AI-enabled software program that analyzes behavioral history to generate psychological diagnoses in cats and dogs. Using online and teleconsulting interviews with pet owners, the platform’s AI, “PetTelligence,” reduces consulting inefficiencies and suggests the most useful behavioral interventions. The software is less expensive and may provide more consistent stress measurement than using invasive, unreliable biomarkers such as serum cortisol. If this stress quantification model is validated through further study, it could create a new standard of care in the treatment of canine and feline medical diseases that have psychological stress components, and could eventually be adapted for human use.