

30th Conference of the International Society for Anthrozoology



The changing nature of human-
animal relationships: Theory,
research and practice

June 22-24, 2021
Virtual



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Welcome to ISAZ 2021

Greetings,

We are excited to welcome you to the 30th annual conference of the International Society for Anthrozoology. This year marks ISAZ's second year hosting a virtual conference, and despite the virtual format, the conference includes many opportunities for delegates to engage with colleagues from around the world. This year, we have an exciting lineup of keynote lectures presented by Frans de Waal, Aubrey Fine, and Elizabeth Strand. These lectures are complemented by our schedule of live-streamed talks, which include member-organized symposia and topically themed sessions. All of these (with the exception of Frans de Waal's talk) will be recorded and available to watch at your leisure after the conference. Additionally, thanks to the fantastic response to the call for abstracts, delegates can access approximately 150 additional talks "on demand" through our conference portal. With talks by scholars from the humanities, social sciences, and natural sciences, our program reflects the rich, interdisciplinary nature of the field of anthrozoology.

In addition to offering an assortment of livestreamed and on-demand talks, we have arranged for our participants to connect with each other. Scattered throughout the conference are 30-minute networking and social opportunity events. During these events, you are invited to join a Zoom room with individuals who share similar interests. Furthermore, there are opportunities to ask many of our speakers questions during live question and answer periods, which will occur at the end of each livestream session and at specified times for the on-demand presentations. We encourage you to take advantage of these important opportunities to network and socialize with your anthrozoology colleagues.

We hope that you enjoy the conference!

The ISAZ 2021 Local Organizers.

Christy Hoffman
Canisius College,
Buffalo, NY USA



Malini Suchak
Canisius College
Buffalo NY, USA



Message from the President

Greetings!

On behalf of the International Society for Anthrozoology (ISAZ), it is my pleasure to welcome you to the 30th annual ISAZ conference. What a year it has been! While I am sorry not to see you all in person, we wanted to continue to bring you the latest research in anthrozoology and we hope that our second virtual conference will allow for more people to participate.

I would like to start by acknowledging all the help and support that made this conference possible. First, I need to recognize Drs. Christy Hoffman and Malini Suchak, our local conference hosts at Canisius College, for their dedication, organization, and vision in putting on this event. I would also like to thank Patricia Pendry, the ISAZ President-Elect, who worked closely with the local host committee on all aspects of the programming, and Abbey Thigpen, the ISAZ Administrative Manager, for her tireless work supporting this conference as well as all of the other many activities of our organization.

Second, I would like to recognize other members of the ISAZ Board for their leadership efforts relating to this conference, including Lee Zasloff (Programs Officer), John-Tyler Binfet (Secretary for Development), Megan Mueller (Treasurer), and Matt Chin (Chair of the ISAZ Awards Committee). We are also exceptionally grateful to Emma Grigg (Secretary for Communications) and Kerri Rodriguez (ISAZ Student Board Member) for their outstanding use of social media to promote this event.

Third, I would like to thank this year's conference sponsors: Purina, Mars-Waltham, Zoetis, ASPCA, Human Animal Bond Association (HABA), Building Academic Retention through K9s (BARK), Pet Partners, and the Routledge Taylor-Francis Group. Our annual conference would not be possible without their generous financial support and each of these organizations shares our vision of promoting the well-being of both humans and animals through dissemination of scholarly work in anthrozoology.

This year we have two presentations by ISAZ awardees: Dr. James Serpell, the 2021 ISAZ Distinguished Anthrozoologist, and Dr. Karin Hediger, the 2020 ISAZ Early Career Scholar. We hope you will join us "live" for these exciting talks. We are also hosting a Meet the Leaders social event, sponsored by Mars-Waltham, where conference delegates can meet some of the current ISAZ Board members and Fellows. We encourage all members to attend the ISAZ Annual General Meeting, where we will introduce our 2021 ISAZ Fellow and present a summary of the past year's activities. If you are not yet a member, we hope you will consider joining us soon! At the Closing remarks, we will present the Anthrozoös Best Paper award and announce the winners of the 2021 conference competitions.

On a personal note, the upcoming conference will mark the end of my two-year term as ISAZ President. Over my eight years on the ISAZ Board, I have come to appreciate more than ever what a unique organization ISAZ is. It is wonderful to see the topic of human-animal interactions approached from such a wide variety of disciplines and it has been a pleasure to see the field continue to grow. I look forward to seeing what the future will bring.

Finally, a sincere thanks to all of YOU for supporting ISAZ. I hope you enjoy the 2021 conference!



Kristen Jacobson

ISAZ President



About the International Society for Anthrozoology

The International Society for Anthrozoology (ISAZ) was formed in 1991 as a supportive organization for the scientific and scholarly study of human–animal interactions. ISAZ is a non-profit, non-political organization with a worldwide, multi-disciplinary membership of students, scholars and interested professionals.

Our mission is to serve the growing community of scholars and scientists working in the field of Anthrozoology (the study of human–animal interactions and relationships) by supporting research, publishing and disseminating new insights and discoveries, and promoting the exchange of knowledge and expertise within the field.

To learn more, please explore our web site: www.isaz.net.

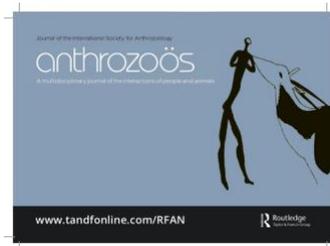
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The Journal

Anthrozoös: A Multidisciplinary Journal of the Interactions of People and Animals

Official Journal of the International Society for Anthrozoology (ISAZ)

© International Society for Anthrozoology (ISSN: 0892-7936; e-ISSN: 1753-0377)



Anthrozoös is a bi-monthly, peer-reviewed publication whose focus is to report the results of studies, from a wide array of disciplines, on the interactions of people and animals. Academic disciplines represented include anthropology, archaeozoology, art and literature, education, ethology, history, human medicine, psychology, sociology and veterinary medicine.



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Acknowledgements

We would like to thank Patricia Pendry and Abbey Thigpen for their time and assistance in planning the conference as well as the numerous individuals who volunteered their time to serve as an abstract reviewer for the 2021 conference.

Special thanks to Molly Sumridge for her help in planning and running the interactive opportunities.

ISAZ Programs Committee: Patricia Pendry, Kristen Jacobson, Lee Zasloff

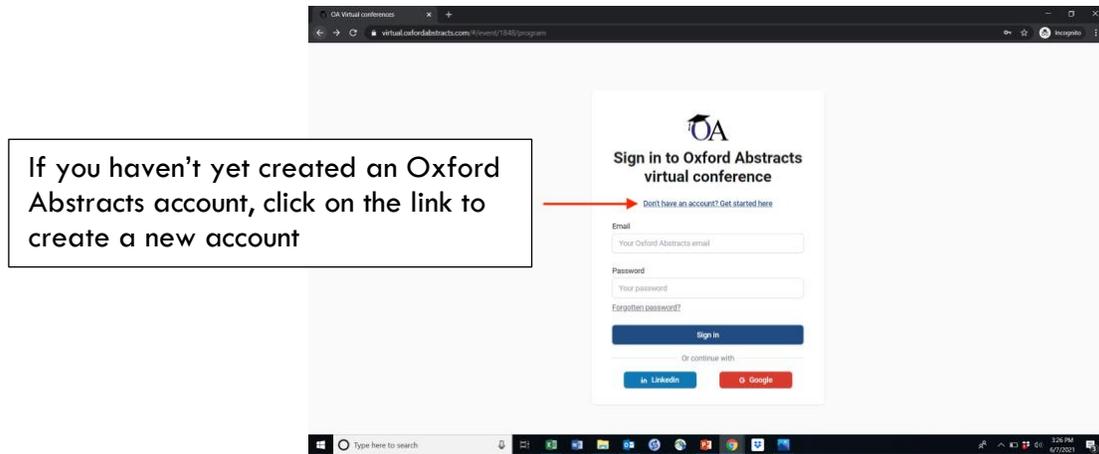
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Thanks to Sam Bailey and Danni Beck of Creature Conferences for providing the livestreaming service for this conference.

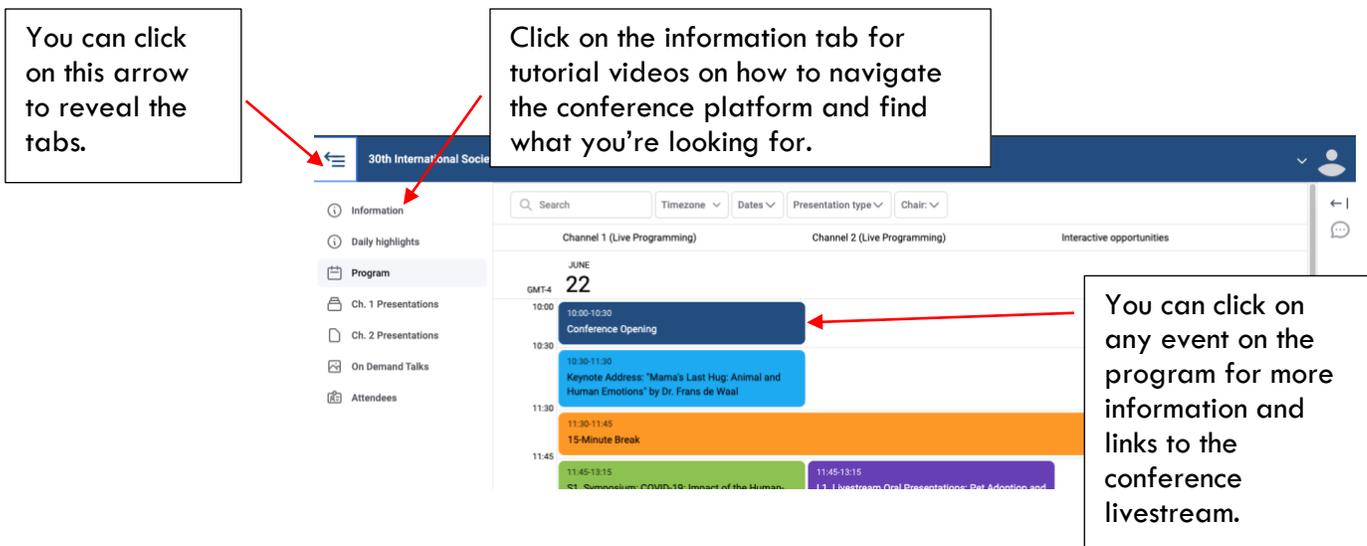


How to access and use the online conference interface

Login to Oxford Abstracts with the email you used to register for the conference:
<https://virtual.oxfordabstracts.com/#/event/1848/program>



The first time you login, you will be asked to set your time zone and create a conference badge ([click here for a tutorial](#)). Then, you will be redirected to the program.



We have three additional tutorials available: [how to use the conference interface](#), [how to navigate the conference program](#), and [how to access the on-demand presentations](#). If you need these instructions at any point during the conference, these are available in the information tab on Oxford Abstracts.

Keynote Speakers



Dr. Frans B.M. de Waal “Mama’s Last Hug: Animal and Human Emotions”

Dr. Frans B. M. de Waal is a Dutch/American ethologist known for his work on the behavior and social intelligence of primates. His scientific work has been published in hundreds of technical articles in journals such as *Science*, *Nature*, *Scientific American*, and outlets specialized in animal behavior. His popular books - translated into 20+ languages - have made him one of the world's most visible primatologists. His latest books are *Are We Smart Enough To Know How Smart Animals Are?* (Norton, 2016) and *Mama’s Last Hug* (Norton, 2019). De Waal is C. H. Candler Professor Emeritus at Emory University and Distinguished Professor Emeritus at Utrecht University. He has been elected to the (US) National Academy of Sciences as well as the Royal Netherlands Academy of Arts and Sciences. In 2007, *Time* declared him one of The Worlds' 100 Most Influential People Today.

*Please note: This talk will not be available on demand following the conference. For your convenience, we have scheduled a second viewing at 18:15 EDT on June 22.



Dr. Aubrey Fine "Conceptualizing the field of animal assisted interventions: Reimagining the directions and future of the field"

Dr. Aubrey Fine's studies the psycho-social impact of human animal interactions and animal assisted interventions, social skills training and children with ADHD, and resilience in children. Dr. Fine is the author of several books, including *The Handbook on Animal Assisted Therapy*, *Afternoons with Puppy*, and *The Welfare of Animals in Animal Assisted Therapy* (Springer 2021). He also has a featured monthly column in *Dog Fancy* magazine, has been a guest on numerous national TV and radio shows, and has been featured in print publications such as the *Wall Street Journal*, *Time* magazine, and the *New York Times*.

Dr. Fine a Professor Emeritus at California State Polytechnic University and a licensed psychologist. In July of 2016 he received the William McCulloch Award for Excellence in Human Animal Interaction Education and Practice from the IAHAIO. Dr. Fine is the chair of the Human Animal Bond Advisory Committee of Pet Partners.



Dr. Elizabeth Strand “Veterinary Social Work: The transdisciplinary power of merging, yielding, and staying in your lane”

Dr. Elizabeth Strand is the Founding Director of Veterinary Social Work (VSW) at the University of Tennessee College of Veterinary Medicine. She is a licensed clinical social worker, experienced family therapist, Grief Recovery Specialist, and a Mindfulness-Based Stress Reduction Teacher. She has been working in the field of social work for 20 years.

Her interest-areas include the link between human and animal violence, animals in family systems, the development of veterinary social work, as well as communication skills, conflict resolution, and stress management techniques in animal-related environments. Her professional mission is to encourage the humane treatment of both people and animals and to care for those professionals who care for animals.

Distinguished Anthrozoologist and Early Career Award Talks

2021 ISAZ Distinguished Anthrozoologist Award Winner



Dr. James Serpell “Is Pet Keeping Bad for the Environment?”

A number of recent studies have addressed questions regarding the environmental impact of pet keeping. In light of pressing concerns about climate change and loss of global biodiversity, the issues raised by these investigations are far from trivial. Overall, the evidence suggests that the ecological footprint and greenhouse gas emissions of many First World pets are roughly equivalent to those of many Third World people, thereby placing pet keeping on a par with other environmentally damaging activities, such as eating beef or driving around in gas-guzzling SUVs. Such findings are likely to lead to increasing demands for restrictions or taxes on pet ownership, and improvements in the sustainability of pet foods. The

question raised in this presentation is whether pet keeping also entails environmental benefits.

Two areas of possible environmental benefit are identified and discussed: first, the somewhat controversial idea that pets contribute to lowering human birthrates by effectively replacing children, and second, the potential ability of pet keeping—especially during childhood—to inculcate animal-oriented empathy and concern for the well-being of wild animals and their habitats. Evidence in favor of these two ideas is briefly reviewed and discussed, and suggestions for further research in these areas are proposed. Knowledge of positive environmental effects of pet keeping will help to ensure a balanced debate on the relative costs and benefits of our relationships with companion animals in the future.

2020 ISAZ Early Career Award Winner



Dr. Karin Hediger “From bench to barn to bed: Can understanding human-animal interactions help us to design better treatments?”

Evidence for the effectiveness of animal-assisted interventions has grown over the last years. While there are still several major research gaps that need to be filled to fully understand the effectiveness and mechanisms of treatments that integrate animals, I find it similarly important to go a step further and use results from human-animal interaction research for other fields. In this talk, I propose using a translational research approach for the field of animal-assisted interventions. Thus, I will explore the possibilities of using our existing knowledge for general treatment design. The central question is if understanding human-animal interactions could help us to design better treatments. Is it possible to translate results and learnings back to general clinical practice and make it usable also for the

big majority of therapists that do not work animal-assisted and patients that don't have access to animal-assisted interventions? Is there a limit or a downside of this potential? I will present research of our group and give concrete examples to illustrate these considerations. I will also discuss challenges for future research in the light of such translational use of HAI results that will hopefully bring us a step forward in designing better treatments by taking a detour to the barn on the way from “bench to bedside and back”.

Program Overview

All times are in Eastern Daylight Time (East Coast US). You can find your local time conversion by adding your city or time zone here:

<https://www.timeanddate.com/worldclock/converter.html?iso=20210622T140000&p1=422>

Monday, June 21st

9:00-13:00 EDT **Workshop: Navigating the Job Market, Obtaining Funding, and Networking - A Workshop for Students, Postdoctoral Fellows, and Early Career Researchers in Anthrozoology**

14:00-18:00 **Workshop: Working and planning in uncertain times**

Tuesday, June 22nd

10:00-10:30 **Conference Opening Remarks**

10:30-11:30 **Keynote address:** Dr. Frans de Waal “Mama’s Last Hug: Animal and Human Emotions”
*Please note: This talk will not be available on demand following the conference. For your convenience, we have scheduled a second viewing at 18:15

11:45-13:15 **Channel 1- Symposium 1 (S1):** COVID-19: Impact of the Human-Animal Bond on Human and Animal Well-Being -- Perspectives from the United States and the United Kingdom
Channel 2- Livestream Oral Presentations 1 (L1): Pet Adoption and Retention

13:15-13:45 **Networking and Social Opportunities**

13:45-15:15 **Channel 1- Symposium 2 (S2):** Can Dogs Play a Role in Improving Children's Learning and Socio-emotional Well-Being? Evidence from a Longitudinal, Randomised Controlled Trial
Channel 2- Livestream Oral Presentations 2 (L2): Multispecies Ethnography

15:15-15:45 **Meet the Leaders Event** Sponsored by Mars Petcare and the Waltham Petcare Science Institute / **Networking and Social Opportunities**

15:45-17:15 **Channel 1- Symposium 3 (S3):** Big Brains in Small Places: The Impact of Confined, Impoverished Environments on Large, Complex Brains
Channel 2- Livestream Oral Presentations (L3): Animal Assisted Interventions: Methodology and Measurement

17:15-18:15 **Q&A Session with On-Demand Talk Authors**

18:15-19:15 **Second viewing of Keynote Address:** Dr. Frans de Waal “Mama’s Last Hug: Animal and Human Emotions”

Wednesday, June 23rd

10:00-11:00	Q&A Session with On-Demand Talk Authors
11:00-12:30	Channel 1- Symposium 4 (S4): University-Based Animal-Assisted Interventions (AAls): Theory and Research Toward Identifying Direct and Indirect Effects of Active Components on Stress-Related Outcomes Channel 2- Livestream Oral Presentations 4 (L4): Pets in the Pandemic
12:30-13:30	NIH/Waltham Funding talk
13:30-15:00	Channel 1- Symposium 5 (S5): Animal Welfare, Treatment Integrity, and Mechanism of Change: Pressing Issues in Equine-Assisted Intervention Channel 2- Livestream Oral Presentations 5 (L5): Human Perspectives on Caring for Animals with Special Health Needs
15:15-16:15	Keynote Address: Dr. Aubrey Fine “Conceptualizing the Field of Animal-Assisted Interventions: Reimagining the Directions and Future of the Field”
16:30-18:00	Channel 1- Symposium 6 (S6): Pets and Human Suicide—Emerging Complexities, Contradictions, and Multiple Intersections Channel 2- Livestream Oral Presentations 6 (L6): Equine Welfare
18:00-18:30	Networking and Social Opportunities

Thursday, June 24th

10:00-10:45	Annual General Meeting for ISAZ members
11:00-11:45	Distinguished Anthrozoologist Award and Presentation: Dr. James Serpell
11:45-12:00	Presidential Address: Dr. Patricia Pendry
12:00-12:45	Early Career Award Winner Presentation: Dr. Karin Hediger
13:00-14:00	Keynote Address: Dr. Elizabeth Strand “Veterinary Social Work: The Transdisciplinary Power of Merging, Yielding, and Staying in Your Lane”
14:15-15:45	Channel 1- Symposium 7 (S7): Research on Animals in Educational Contexts Channel 2- Livestream Oral Presentations 7 (L7): Tour of Anthrozoology
16:00-17:30	Channel 1- Symposium 8 (S8): More than a Pet: “Pet Parenting” as an Emerging Family Practice Channel 2- Livestream Oral Presentations 8 (L8): Assistance Dogs
17:30-18:30	Awards Ceremony and Closing Remarks Student awards sponsored by <i>Animals</i>

Friday, June 25th

10:00-15:00

Workshop: Let's talk about AAI terminologies: Consensus and collaboration in research and practice

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Full Program

All times are in Eastern Daylight Time (East Coast US). You can find your local time conversion by adding your city or time zone here:

<https://www.timeanddate.com/worldclock/converter.html?iso=20210622T140000&p1=422>

Please note: For the sake of brevity, only the presenting author is listed in the schedule. A full list of authors can be found in the [abstracts](#).

Monday, June 21st

9:00-13:00

Workshop: Navigating the Job Market, Obtaining Funding, and Networking - A Workshop for Students, Postdoctoral Fellows, and Early Career Researchers in Anthrozoology

Organizer: Kerri Rodriguez

Note: Separate registration required

14:00-18:00

Workshop: Working and planning in uncertain times

Organizer: Maureen McNamara

Note: Separate registration required

Tuesday, June 22nd

10:00-10:30 **Conference Opening**

10:30-11:30 **Keynote Address:** Dr. Frans de Waal “Mama’s Last Hug: Animal and Human Emotions”
*Please note: This talk will not be available on demand following the conference. For your convenience, we have scheduled a second viewing at 18:15
Chair: Sandra McCune

11:30-11:45 15-Minute Break

11:45-13:15

Channel 1

[Symposium 1 \(S1\)- COVID-19: Impact of the Human-Animal Bond on Human and Animal Well-Being – Perspectives from the United States and the United Kingdom](#)

Chair: Jane Murray
Discussant: Lori Kogan

The Impact of Social and Economic Resources on Human-Animal Relationships During COVID-19: Setting an Agenda for Future Research Jennifer W. Applebaum

Attachment to Pets Moderates Transitions in Latent Patterns of Mental Health Following the Onset of the COVID-19 Pandemic: Results of a Large Survey of U.S. Adults Camie A. Tomlinson

Human-Animal Relationships and Interactions During the Covid-19 Lockdown Phase in the UK: Investigating Links with Mental Health and Loneliness Emily Shoemith

Impacts of COVID 19 on Dog-Human Interactions and Support for Dogs Robert Christley

Channel 2

[Livestream Oral Presentations 1 \(L1\)- Pet Adoption and Retention](#)

Chair: Carri Westgarth

"And Then What?" A Phenomenological Study of People Who Adopted Abused and Neglected Dogs John Reilly

Does Fido have a Foot in the Door? Social Housing Companion Animal Policies and Policy Decision-Making Cary A. Brown

Measuring the Impacts of Increasing Access to Pet Support Programming on One Health in Two Underserved Communities Tess Hupe

Saving Seniors: A National Study of Strategies to Increase the Adoption and Retention of Senior Dogs Lisa Lunghofer

13:15-13:45

[Networking and Social Opportunities](#)

13:45-15:15

Channel 1

[Symposium 2 \(S2\)- Can Dogs Play a Role in Improving Children's Learning and Socio-emotional Well-Being? Evidence from a Longitudinal, Randomised Controlled Trial](#)

Chair: Kerstin Meints
Discussant: Sabrina Schuck

Do Dog and Relaxation Interventions Affect Categorisation in Children with and Without Special Educational Needs? Evidence from a Longitudinal, Randomised Controlled Trial
Kerstin Meints

Effects of Animal-Assisted Interventions on Executive Functioning in School Children: A Longitudinal, Randomised Controlled Trial Victoria L. Brelsford

Effects of Dog-Assisted Interventions on Self-Esteem and Anxiety in Children with and Without Special Educational Needs: A Longitudinal, Randomised Controlled Trial
Mirena Dimolareva

Channel 2

[Livestream Oral Presentations 2 \(L2\)- Multispecies Ethnography](#)

Chair: Joshua Russell

Bees, Forest and People - Multispecies Ethnography in Heritage Studies of Tree-Beekeeping Culture in Poland
Karolina Echaust

Multi-Species Ethnography During a Pandemic: Problems and Possibilities Nickie Charles

Irreplaceable Tools: An Ethnographic Examination of the Development of the Dog-Human Relationship in Volunteer K-9 Search and Rescue Teams Kara Griffin

Born to Buck, Not to Be Wild: Changed Emic Perceptions on Bucking Horses in American Rodeo Evelien Deelen

15:15-15:45

[Meet the Leaders Event](#) Sponsored by Mars Petcare and the Waltham Petcare Science Institute / [Networking and Social Opportunities](#)

15:45-17:15	<p style="text-align: center;">Channel 1</p> <p><u>Symposium 3 (S3) - Big Brains in Small Places: The Impact of Confined, Impoverished Environments on Large, Complex Brains</u></p> <p>Chair: Lori Marino Discussant: Syd Johnson</p> <p>Neurocaptivity: The Impoverishment of the Brain Bob Jacobs</p> <p>The Neuropsychiatric Consequences of Impoverished Environments in Mammals Lori Marino</p> <p>Consequences of Impoverished Environments for the Physical Health of Captive Elephants and Cetaceans: Evidence of Neurobiological Harm? Heather Rally</p>	<p style="text-align: center;">Channel 2</p> <p><u>Livestream Oral Presentations 3 (L3)- Animal-Assisted Interventions: Methodology and Measurement</u></p> <p>Chair: Cheryl Krause-Parello</p> <p>Considering the Bond: Efficacy and Attachment Benefits of AAI's Between Children and Their Family Dog. Monique Udell</p> <p>To Be and to Seem Evidence-Based: How Research Designs Help (Or Not) to Strengthen Animal-Assisted Interventions Javier López-Cepero</p> <p>Measuring Synchrony During Animal-Assisted Interventions Steffie Van der Steen</p> <p>Reducing Risk While Increasing Resilience in Traumatized Populations in Animal Assisted Intervention Settings Amy R. Johnson</p>
17:15-18:15	<p><u>Question and Answer Session with On-Demand Talk Authors</u></p>	
18:15-19:15	<p>Second Viewing of Keynote Address: "Mama's Last Hug: Animal and Human Emotions" by Dr. Frans de Waal (no question and answer session)</p>	

Wednesday, June 23rd

10:00-11:00

[Question and Answer Session with On-Demand Talk Authors](#)

11:00-12:30

Channel 1

[Symposium 4 \(S4\)- University-Based Animal-Assisted Interventions \(AAIs\): Theory and Research Towards Identifying Direct and Indirect Effects of Active Components on Stress-Related Outcomes](#)

Chair: Patricia Pendry
Discussant: Nancy Gee

Touch Expect and Support Theory (TEST): A Pathway Model Describing Active Components of University-Based Animal Assisted Interventions on Proximal and Distal Stress-Related Outcomes

Patricia Pendry

Teasing Out Effective AAI Components of a University-Based Animal Visitation Program on Students' Physiological Arousal and Regulation Jaymie L. Vandagriff

The Importance of Touch in On-Campus Canine-Assisted Stress-Reduction Interventions: A Randomized Controlled Trial
John-Tyler Binfet

Channel 2

[Livestream Oral Presentations 4 \(L4\)- Pets in the Pandemic](#)

Chair: Sara C. Owczarczak-Garstecka

Pets and a Pandemic: An Exploratory Mixed Method Analysis of How the COVID-19 Pandemic Affected Dogs, Cats, and Owners Courtney J. Bolstad

A Novel Tool for Animal Welfare: Text Mining Twitter to Assess Topics of Interest and Sector Perceptions of Dogs During a Global Pandemic Kristen M McMillan

The Effect of the COVID-19 Lockdown on Activity Patterns of Pet Dogs in the Netherlands
Kathalijne Visser

Dog Walking Before and During the COVID-19 Pandemic: Experiences of UK Dog Owners
Carri Westgarth

12:30-13:30

NIH/Waltham Funding Talk

13:30-15:00	<p style="text-align: center;">Channel 1</p> <p><u>Symposium 5 (S5)- Animal Welfare, Treatment Integrity, and Mechanism of Change: Pressing Issues in Equine-Assisted Intervention</u> Chair: Angela Fournier Discussant: Anastasia Georgiades</p> <p>Human-Animal Interaction in Equine-Assisted Intervention: Informing Intervention Process and Animal Welfare Angela Fournier</p> <p>A Critical Review of Treatment Integrity in Equine-Assisted Interventions Erica J. Gergely</p> <p>What Works? Presenting Theories of Mechanism of Change of Psychotherapy Using Equines Found Within the Academic Literature Michelle D. Garner</p> <p>EAST: An Integrative Intervention Theory for Psychotherapy Incorporating Horses Noreen W. Esposito</p>	<p style="text-align: center;">Channel 2</p> <p><u>Livestream Oral Presentations 5 (L5)- Human Perspectives on Caring for Animals with Special Health Needs</u> Chair: John-Tyler Binfet</p> <p>Burden of Care in Owners of Cats with Epilepsy Julia S.L. Henning</p> <p>The Ageing Horse: Conceptualising the Human-Horse Relationship Rebecca Smith</p> <p>The Dark Side of the Pet Effect: Evaluating Impacts of Chronic Disease in Dogs on Their Caregivers Rowena M. A. Packer</p> <p>“Just Old Age” - A Qualitative Investigation of UK Owner Experiences and Attitudes to Ageing of Senior and Geriatric Dogs Lisa J. Wallis</p>
15:00-15:15	15-Minute Break	
15:15-16:15	<p><u>Keynote Address:</u> Dr. Aubrey Fine “Conceptualizing the Field of Animal-Assisted Interventions: Reimagining the Directions and Future of the Field” Chairs: Francois Martin, Sabrina Schuck</p>	
16:15-16:30	15-Minute Break	

16:30-18:00	<p>Channel 1 <u>Symposium 6 (S6)- Pets and Human Suicide -- Emerging Complexities, Contradictions, and Multiple Intersections</u> Chair: Janette O. Young Discussant: Janette O. Young</p> <p>A Brief Overview of the Emerging Positive Connections Between Pets and Human Suicidality: An Intensely Positive Pet Effect Janette O. Young</p> <p>Extended Suicides Involving Pets: An Analysis of News Reports Harold Herzog</p> <p>News Reports of Teenage Suicides After a Pet's Death Jody A. Olsson</p> <p>Findings of Pets in Intentional Deaths/Suicide in Publicly Accessible Coroners' Reports in Australia Katerina I.P. Mattock</p>	<p>Channel 2 <u>Livestream Oral Presentations 6 (L6)- Equine Welfare</u> Chair: Patricia Pendry</p> <p>Parallels Between Locked-Down Humans and Locked-Up Equines: Could Human Experiences of COVID-19 Lead to Equine Welfare Improvements? Jo Hockenull</p> <p>Please Don't Feed the Horses: How the Public May Pose a Threat to Equine Wellbeing Amelia Cameron</p> <p>Public Roads as Places of Interspecies Conflict: A Study of Horse-Human Interactions on UK Roads Danica Pollard</p> <p>Making a Business from Your Hobby: The Complex Case of Managing Equestrian Livery Yards, and Their Effects on Equine Welfare Tamzin Furtado</p>
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18:00-18:30 [Networking and Social Opportunities](#)

Thursday, June 24th

10:00-10:45	<p>Annual General Meeting All ISAZ members are invited to attend</p>
10:45-11:00	15-Minute Break
11:00-11:45	<p><u>Distinguished Anthrozoologist</u> Award Winner Presentation: Dr. James Serpell "Is Pet Keeping Bad for the Environment?"</p>
11:45-12:00	<p>Presidential Address: Patricia Pendry</p>
12:00-12:45	<p><u>Early Career Award</u> Winner Presentation: Dr. Karin Hediger "From bench to barn to bed: Can understanding human-animal interactions help us to design better treatments?"</p>

12:45-13:00	15-Minute Break	
13:00-14:00	Keynote Address: Dr. Elizabeth Strand “Veterinary Social Work: The Transdisciplinary Power of Merging, Yielding, and Staying in Your Lane” Chair: Sandra Barker	
14:00-14:15	15-Minute Break	
14:15-15:45	<p>Channel 1 <u>Symposium 7 (S7)- Research on Animals in Educational Contexts</u> Chair: Joshua Russell Discussant: Connie Russell</p> <p>Multispecies Explorations of Children and Urban Wildlife at a Canadian Forest School Elizabeth Boileau</p> <p>Regarding the Hunted: A Phenomenological Investigation into Children’s Experiences of Hunting and Fishing Joshua Russell</p> <p>“He’s Noisy, Smelly and Dirty:” Impact of Teacher Talk on Children’s Relations with Animals Patty E. Born</p>	<p>Channel 2 <u>Livestream Oral Presentations 7 (L7)- Tour of Anthrozoology</u> Chair: Catherine Amiot</p> <p>The Implications of Identifying with Animals for Our Shifting Relationships with Two Omnipresent Groups of Animals in Our Lives: Pets and Meat-Animals Catherine Amiot</p> <p>Measuring the Impact of Prison-Based Dog Training Programs on Recidivism: A Propensity Score Matched Survival Analysis Kevin Morris</p> <p>Risk Factors for Childhood Animal Harm: The Roles of Attachment, Empathy, Executive Functions, and Callous-Unemotional Traits Laura M. Wauthier</p> <p>Attitudes to Animal Sentience and the Captive Animal Experience Arianna West</p>
15:45-16:00	15-Minute Break	

16:00-17:30	<p style="text-align: center;">Channel 1</p> <p><u>Symposium 8 (S8)- More Than a Pet: "Pet Parenting" as an Emerging Family Practice</u> Chair: Shelly L. Volsche Discussant: Lori Kogan</p> <p>Not Just a Walk in the Park: Dog Park Ethograms of Human-Dog Dyads Terra L. Green</p> <p>For the Love of Cats: Women's Oxytocin Response to and Social Connections with Their Cats Elizabeth A. Johnson</p> <p>9andDog or 19andCat: Direct-to-Consumer Genetic Testing for Companion Animals and the Need for Social Science Research Nikki E. Bennett</p> <p>The Difference is in the Details: A Comparative Study of Attachment and Cross-Species Parenting in the United States and India Rijita Mukherjee</p>	<p style="text-align: center;">Channel 2</p> <p><u>Livestream Oral Presentations 8 (L8)- Assistance Dogs</u> Chair: Kerri Rodriguez</p> <p>Emotions at Work: The Role of Emotional Labour During a Guide Dog's Education Tiamat J. Warda</p> <p>COVID-19: The Effects of Isolation and Social Distancing on Guide Dog Owners in the UK John Fellenor</p> <p>From Pet to Assistance Dog: The Changing Relations of Care in the Human-Assistance-Dog Relationship Jamie Arathoon</p> <p>Grief, Loss and Bereavement in Assistance Dog Users Grainne A. O'Connor</p>
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17:30-18:30	<p>Awards Ceremony and Closing Remarks Student awards sponsored by Animals</p>
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Friday, June 25th

10:00-15:00	<p><u>Workshop: Let's talk about AAI terminologies: Consensus and collaboration in research and practice</u> Organizer: Amy Johnson</p> <p>Note: Separate registration is required</p>
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On Demand Q&A Schedule

Presenting authors of the talks listed below will be available via Zoom to answer your questions. Click on the link to access the Zoom meeting and then select the “breakout room” for that author. For example, authors listed under “Community-based initiatives to increase pet adoption and retention” will be available in a room with that name. A host will be available to help you find the correct room.

Tuesday, June 22nd, 17:15-18:15 EDT

Click here to join the session: <https://canisius.zoom.us/j/97972838405>

Room 1: Community-Based Initiatives to Increase Pet Adoption and Retention

Heather Frigiola	A Case Study on the Improvement of Rescue Rates of Dogs and Cats at a Municipal Animal Shelter
Lori R. Kogan	Subsidized Veterinary Services –Assessment Must Include More Than Mere Number of Animals Served
Elizabeth Wheatall	Enhancing Marginalized Populations’ Utilization of Companion Animal Support Services Through the Use of a Cultural Competence Inventory

Room 2: Companion Animals and Their Caregivers

Jessica Bibbo	Pet Care in SHARE: Issues Encountered by Professionals Working with Families Living with Dementia
Petra T. Edwards	Australian Veterinary Industry’s Attitude Toward Fear-Free Veterinary Care for Companion Dogs
Anamarie C. Johnson	To Cue or Command? a Qualitative Analysis of Word Use and Choice by United States Dog Trainers
Erin K. King	Inequities in Access to Veterinary Care
Angela Matijczak	“He Was Like, My Ride or Die”: Sexual and Gender Minority Emerging Adults’ Perspectives on Living with Pets During the Transition to Adulthood
Leanne O. Nieforth	Impacts of Mobility and Medical Alert Service Dogs on Caregivers
Danielle Marie A. Parreño	Investigating the Role of Facebook Groups about Pets on the Mental Health and Well-being of Filipinos

Tuesday Q&A (cont.)

Room 3: Efficacy of Animal-Assisted Interventions

Anne M.C. Barnfield	Therapeutic Interactions in Equine Assisted Psychotherapy for Veterans with PTSD
Angela M. Hughes	The Potential for Pets to Help Alleviate the Epidemic of Loneliness and Social Isolation and Lessons From the COVID-19 Pandemic
Miki Kakinuma	Use of Children’s Drawings for Evaluation of Equine-Assisted Interventions--Development of Draw-a-Horse Scoring System
Devon MacPherson-Mayor	At Both Ends of the Leash: Preventing Service Dog Oppression Through the Practice of Dyadic-Belonging
Marissa Motiff	Evaluating Animal-Assisted Interventions with Youth: A New Version of the FACES Behavioral Observation Instrument
Wendy M. Newton	The Guidelines and Policies that Influence the Conduct of Animal-Assisted Activities in Residential Aged-Care Facilities: A Systematic Integrative Review.
Kerri E. Rodriguez	The Effects of Service Dogs for Children with Autism Spectrum Disorder and Their Caregivers

Room 4: Ethical Considerations in Human-Animal Interaction Research

Annabel DeSmet	North American Felid Keepers’ Perception of Welfare and the Implications for Zoo Managers
Annemarie Ferrie	Attitudes and Perceptions of Zoological Professionals and Animal Rights Activists Regarding Zoo Animal Welfare
Lynette A. Hart	The New Paradigm of Personal Choice on the Age to Spay or Neuter a Dog: A Recent Updating of the Ancient Practice of Castration of Livestock and Boys
Addie Reinhard	Trials and Tribulations of New Veterinary Graduates
Marie Sigaud	On the Menu: Japanese Exotic Animal Cafés Fueling the Pet Trade with Implications for Biodiversity, Global Health and Animal Welfare
Rise VanFleet	Animal Agency: Do We Sell Them Short?

Tuesday Q&A (cont.)

Room 5: Human-Animal Interactions in Educational Settings

Alexa M. Carr	Understanding Links Between College Students' Childhood Pet Ownership and Separation Anxiety During the Transition to College
Shannon Kelley	The Influence of Human-Animal Interaction on the Anxiety, Affect, and Heart Rate of Undergraduate Students
Brian W. Ogle	Qualitative Evaluation of Undergraduate Students' Reflective Process and Related Outcomes in a Humane Education Course
Laura Poleshuck	Interactions with a Future Guide Dog: A Pilot Study with First Year College Students
Jeffrey R. Stevens	Effects of Human-Animal Interactions on Affect and Cognition

Room 6: Impacts of COVID-19 on the Human-Animal Relationship

Aleisha Fernandes	An Exploratory Analysis of Delivery Alternatives for University Based Animal Therapy During COVID-19
Katherine FitzHywel	2020 and the Aporia of Human Love for Animals: How Bushfires and Isolation Highlighted and Changed Contradictions in Human-Animal Entanglements as Expressed in Australian Poetry
Hsin-Yi Weng	Impact of COVID-19 Pandemic on Perceived Emotional Closeness to Pet and Pet Effect on Perceived Stress and Loneliness
Linzi E. Williamson	Online Therapy Dog Programming: What's in it for the Dog?
Lee Zasloff	Living Alone in the Time of COVID: Are People with Cats Less Lonely?

Room 7: Leveraging Technology in Human-Animal Interaction Research

Kristen Schmidt	Perceptions of Virtual Dogs Displaying a Variety of Behaviors
Briana Sobel	Imagining Objects as Dogs

Tuesday Q&A (cont.)

Room 8: Studying Animal Behavior in Human-Animal Interaction Contexts

Erika Friedmann	Shelter Dogs on a Walk: Examining the Effect of Veterans' PTSD Symptoms on Dog Stress
Serene Liu	Can Implementation of Mental Health Interventions for Animal Handlers Benefit Animal Welfare? A Preliminary Study
Dac Loc Mai	Assistance Dog Puppy Behaviour: The Influences of Puppy Training and Socialisation Provided by Puppy Raisers, and Organisational Support
Yuki Morinaga	GPS Survey of Mare-Foal Pairs in Mongolia -How Nomads Produce Good Horse Milk
Courtney L. Sexton	What is Written on a Dog's Face? Phenotyping Human-Directed Canine Communication
Kylee B. Wong	Assessing the Influence of Food Treats and Dog Stress Responses During Low Stress Handling Exercises: A Preliminary Study
Miriam Young	Don't Poop Here: Multispecies Conflicts in the Tree Wells of Brooklyn

Room 9: Therapists, Facilitators, and Handlers

Taylor Chastain Griffin	Understanding and Meeting the Needs of AAI Professionals
Jaci Gandenberger	The Targeted Incorporation of Nature-Based Interventions for Children and Youth: Staff Perspectives
Christine A. Kivlen	Graduate Students' Perceptions of a Canine-Assisted Stress-Reduction Intervention
Zenithson Y. Ng	Adverse Events Reported in Animal-Assisted Interventions

Wednesday, June 23rd, 10:00-11:00 EDT

Click here to join the session: <https://canisius.zoom.us/j/91051176264>

Room 1: Animals in Art, Literature, History, and Culture

Tammy Bar-Joseph	Human-canine Relations in the Holocaust: The Rescue of Jews Thanks to Dogs and Their Bonds with Them
Jes M. Hooper	Portrayals of Animals in Covid-19 News Media
Amber S. Ketchum	What Say You, Dog? Multiple Case Studies Analyzing Modern-Day Animal Trials
Louise Mackenzie	Alive Together: Beyond Depiction. How Interdisciplinary Approaches Across Art, Science and The Humanities Can Inform the Ways in Which Humans and Animals Co-Exist Together
Maureen A. MacNamara	Attitudes Toward Violence: Do Attitudes Toward Intimate Partner Violence Correlate with Attitudes Toward Animal Cruelty?
Martin Ullrich	A Comprehensive Review of Music for Animals from a Musicological Perspective

Room 2: Changing Perspectives Regarding Captive Wildlife

Angela M. Lacinak	How Are Elephants' Welfare and Emotional States Perceived During Elephant-Caregiver Interactions in Zoos?
Chloe Maher	Development of A Composite Welfare Assessment for Bears (<i>Ursidae</i>) In Zoos
Laetitia Marechal	Human Perception of Primate Facial Expression and Its Impact on Human-Wildlife Interactions: A Developmental Approach
Michelle Szydlowski	Captive Elephants at the Crossroads of Culture, Conservation and Tourism
Allana Wheeler	A Preliminary Analysis of the Difference in Zookeeper Attachment to Animals by Taxonomic Groups

Wednesday Q&A (cont.)

Room 3: Companion Animals and Their Caregivers

Kristine Hill	Cats in The Community: Social Discourses Surrounding Free-Roaming Cats in Urban Neighbourhoods
Chiara Mariti	The Impact of Chronic Enteropathy on Dog Quality of Life, Dog Behaviour and Guardian Relationship Towards Their Dog
Rebecca Mead	Understanding the Nature of Research Undertaken by Prospective Dog Owners
Charlotte Solman	Cortisol Coregulation Between Dogs and Owners in One- But Not in Two-Dog Households
Jenni Spännäri	Meaning in Human-Horse Relationships
Henrique Tereno	Children's Pets and Non-Pets

Room 4: Efficacy of Animal-Assisted Interventions

Katharina Hirschenhauser	Relationships with a Non-Vertebrate Animal: Seven-Years Old Children and Their Giant African Land Snail (<i>Achatina Fulica</i>) at School
Cara P. Johnston	Exploring the Effects of the Presence of a Therapy Dog on Children in a Therapeutic Anxiety Management Group
Rahel Marti	Evaluation of a Prison-Based Dog Program to Improve Social and Emotional Skills of Prisoners
Mario A. Parra	Psychological and Physiological Impact of Dog Assisted Activities on Students and Staff in Higher Education
Elena Pauli	Effectiveness of Animal-Assisted Interventions for Children and Adults with Post-Traumatic Stress Disorder Symptoms: A Systematic Review and Meta-Analysis
Marina Pliushchik	Small Theories About the Effectiveness of Canine-Assisted Interventions in Educational Settings in Finland
Lindsey Helen Roberts	A Systematic Review of Childhood Trauma and the Effects of Canine Animal-Assisted Interventions
Lonneke Schuurmans	Agitation During Dog and Robot Group Sessions for Nursing Home Residents with Dementia

Wednesday Q&A (cont.)

Room 5: Ethical Considerations in Human-Animal Interaction Research

Marc Bubeck	Killing as Care: A Reconstruction of Narratives of Veterinary Students in Germany
Jessica Dustin	Evaluating the Relationship Between Compassion for Nonhuman Animals and Compassion for Humans
Bjoern Freter	Racial and Species Violence. On Justanimals and Barelyhumans
Anna T. Korzeniowska	Setting the Stage: Historic Case Studies in Animal Behavior Research
Holly Root-Gutteridge	Moving Forward: Transparent Citation Practices in Animal Behavior Research
Lauren E. Samet	Redressing the Balance: Developing New Questions to Better Represent Dog Investment in the Human-Canine Animal Bond
Shelly Volsche	What Has Changed: How Our Changing Relationships with Animals Changed the Ethics of Research

Room 6: Human-Animal Interaction in Educational Settings

Russell Grigg	Taking the Lead: An International Comparison of Educators' Views and Practices in Relation to the Involvement of Dogs in Schools
Stacey Higgs	Role and Purpose of Direct Human-Animal Interactions in the Crested Porcupine (<i>Hystrix africaeaustralis</i>) and Guinea Pig (<i>Cavia porcellus</i>) in Educational Establishments in The United Kingdom
Helen Lewis	Canines as a Constant in a Changing World: Cuddles, Comfort, and Confidence During the Coronavirus Pandemic
Jill Steel	Reading to Dogs in Schools: An Examination of Teachers' Perspectives
Lesley J. Winton	Sharing the Stories of Rescued Animals with Care Experienced Children to Foster Compassion and Help Reverse the Cycle of Abuse

Wednesday Q&A (cont.)

Room 7: Impacts of COVID-19 on the Human-Animal Relationship

Kassandra Giragosian	The Impact of COVID-19 Restrictions on Adopted Dog Owners Use of Post Adoption Support Services for Problem Behaviours in England
Marine Grandgeorge	Service Dog and Disabled People: When COVID-19 Changes Their Relationship
Roxanne P. Hawkins	Brief Report: Pet Presence, Pet Attachment, and Mental Health During COVID-19 Lockdown
Gilly A. R. Mendes-Ferreira	Pandemic Puppies - How COVID Has Fuelled the Illicit Puppy Trade
Locksley L. McV. Messam	"Dog Walking Is A Risk Factor For SARS-Cov-2 Infection in Humans": A Case of Giving a Dog a Bad Name
Sara C. Owczarczak-Garstecka	"More Attention Than Usual": A Thematic Analysis of Dog Ownership Experiences in The UK During the First COVID-19 Lockdown
Elizabeth A. Walsh	Evaluating the Effects of COVID-19 Restrictions, On the Welfare and On the Behaviour Of Puppies and Dogs and The Impact on Human-Dog Relationships, in Ireland

Room 8: Innovative Study Designs, Methods, and Outcomes

Gabriella Bezerra de Melo Daly	Animal Socialization in Experiments: A Framework for Assessing Human-Animal-Technology interaction in Research
Joni Delanoeijs	College Campus Cat: Exploring Petpace Collar Data and Survey Data to Measure Physiological Responses and Physical Activity During Campus Visits
Nicolas Dollion	How Do Children with ASD Interact with a Service Dog During First Encounter?
Manon Toutain	Relationship Between Visual Exploration and Interaction in Child with ASD During First Encounter with a Service Dog: An Exploratory Study
Georgitta Joseph Valiyamattam	Animals and Social Attention in Autism-An Eye Tracking Analysis

Wednesday Q&A (cont.)

Room 9: Studying Animal Behavior in Human-Animal Interaction Contexts

Hugo Cousillas	When Trained Dogs Could Help in Detection of Human Diseases: Demonstration of the Existence of An Epileptic Seizure Odour in Humans
Tanya S. Erzinclioglu	Using Qualitative Behavior Assessment to Investigate the Effect of Tourist Interaction on Welfare in Captive Tigers (<i>Panthera Tigris</i>) in Three Tourism Facilities in Thailand
Hoi-Lam Jim	Investigating Indirect and Direct Reputation Formation in Dogs and Wolves
Gwendolyn Wirobski	Measuring Human-Animal Relationships: Hand-Raised Pack-Living Dogs and Wolves Show Similar Hormonal Responses to Human Contact, But Pet Dogs Stand Out

Room 10: The Pet Effect

Ana Maria Barcelos	How Do Activities Associated with Dog Ownership Relate to Autistic Adult Well-Being?
Jillian Bradfield	The Effects of Pets on University Student Mental Health and Stress During COVID-19
Anne M. Gadomski	Pet Dog Exposure During Childhood and Teen Mental Health
Dasha Grajfoner	Pet Effect on Human Well-Being, Resilience, Coping Self- Efficacy and Positive Affect During COVID-19 Movement Control Order in Malaysia
Katrina E. Holland	“He Keeps Me Going”: A Qualitative Study of The Meanings and Roles of UK Pet Dogs in Human Lives

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Social and Networking Opportunities

Tuesday, June 22nd 13:15-13:45 EDT

Option 1: Student Mixer. Hosted by Molly Sumridge

Description: Undergraduate and graduate students are welcome to attend this virtual mixer to get to know your fellow students!

Link to join: <https://carroll.zoom.us/j/93780261853>

Option 2: Great minds don't always think alike: How to better navigate conflicts in classrooms and disagreements with colleagues, Hosted by Kris Stewart

Description: Topics in anthrozoology often engage deeply meaningful issues including our place in this world, how we ought to be in relationship with others, and what it means to be human. Whether such issues are explicit or implied, exploring our relationships with animals can inspire deep, productive conversations; it can also push buttons, incite arguments, or cause shut downs in those who wish to avoid conflict altogether. In this session, we'll talk openly about diversity of opinion and what that means for our scholarly culture. All are welcome as we share experiences and discuss strategies for respectful communication, constructive disagreement, and happier progress towards truth.

Link to join: <https://canisius.zoom.us/j/96436220078>

Option 3: Protecting Animal Welfare in AAI. Hosted by Taylor Chastain Griffin

Description: There are so many considerations to make to protect animal welfare in AAI. Let's get together and discuss some of these, taking special note of any emerging best practices that should be shared across disciplines.

Link to join: <https://zoom.us/j/96476817597?pwd=Y3dZMnEvcFY0Y2l4Z2x6cEd0Mlk2dz09>

Option 4: Childhood animal abuse: What does it mean? Hosted by Jo Williams

Description: In this session we will discuss how animal abuse by children and young people is defined and understood. We will discuss how it can be measured and the consequences of identifying a child as having an animal. We will consider the circumstances of in which children may harm animals and the social contexts involved. Finally, we will consider how we can intervene to protect the children and animals involved.

Link to join: <https://zoom.us/j/3866936526?pwd=Zzlwd0RiWk9PRjZaRW1QakhCWk5pQT09>

Tuesday, June 22nd 15:15-15:45 EDT

**Option 1: Meet the Leaders Networking Session. Hosted by John-Tyler Binfet
Sponsored by Mars Petcare and the Waltham Petcare Science Institute**

Description: Curious what to hear what key thinkers in the field have to say about the future of Anthrozoology?

Join us for this Mars Petcare – Waltham sponsored gathering where ISAZ Fellows and Board Members will share their insights. All welcome!

Link to join:

<https://ubc.zoom.us/j/68215953766?pwd=dGpvMWtkL2ZvYkZXVTdWWUElZVNkdz09>

Option 2: Researching the Anthrozoological Perspectives on Captive Wildlife. Hosted by Brian Ogle

Description: This discussion will explore various topics and frameworks used to explore anthrozoological themes within captive wildlife settings. These topics include measuring the human-animal bond within zoos, contemporary perceptions of captive wildlife practices, human-dimension of animal welfare, and assessing the visitor experience.

Link to join: <https://zoom.us/j/93996551862>

Wednesday, June 23rd 18:00-18:30 EDT

Option 1: Prioritizing the opportunities in anthrozoology that light you up! Hosted by Zenithson Ng

The field of anthrozoology is advancing at lightning speed and is robust with innovative opportunities. Passionate individuals with a thirst for learning and leading are presented with exciting opportunities that allow them to indulge, but can also, quite frankly, be incredibly time consuming. Here, we will discuss weighing the pros and cons of the attractive and enticing opportunities in anthrozoology whether you are in academia, nonprofits, organizational leadership, or practice with the goal of invigorating the professional passions that light you up while also prioritizing work-life balance.

Link to join: <https://tennessee.zoom.us/j/8361649193>

Option 2: Aging and Anthrozoology: Pets and AAI. Hosted by Jessica Bibbo

Description: This session will discuss the impact of pet ownership and animal-assisted interventions in aging people, aging families, as well as aging companion animals.

Link to join:

<https://canisius.zoom.us/j/97537166623?pwd=MncyU3VDQUZ6WUFkNVo3NlIkcG10UT09>

Workshops

Workshops are organized by ISAZ members to run in conjunction with the conference. The content, structure, and organization of workshops is the sole purview of the organizers and does not reflect the views of ISAZ or the conference organizers. **Questions about workshops should be directed to the workshop organizers, at the emails listed below.**

Separate registration is required for workshops!

Navigating the Job Market, Obtaining Funding, and Networking - A Workshop for Students, Postdoctoral Fellows, and Early Career Researchers in Anthrozoology

Monday, June 21 09:00-13:00

Organizer: Kerri Rodriguez (Kerri.Rodriguez@colostate.edu)

The field of anthrozoology has experienced an increase in graduate and career opportunities in recent decades. However, due to the interdisciplinary and disparate nature of our field, it can be difficult to find graduate and career opportunities, obtain salary and research funding, and network with others in the field.

This workshop will inform attendees about the broad range of academic and non-academic anthrozoology career pathways available, discuss current challenges navigating the anthrozoology job market, educate individuals about funding opportunities, and provide a platform in which individuals can connect with others at similar stages of their careers.

[Click here to register.](#)

Working and planning in uncertain times

Monday, June 21 14:00-18:00

Organizer: Maureen A. MacNamara (macnamarama@appstate.edu)

We are living in an increasingly complex world and the pandemic has cast a powerful light on the inextricable link between people and animals in ways both negative and positive. Defining the future of human animal relationships in the 21st century will be critical for building animal-centric policies and projects that make space for animals.

The purpose of this workshop is to formally introduce “futures thinking” to people working in the sphere of anthrozoology and challenge us to think more systematically about the future for people and animals, as well as how systems and culture change will impact those relationships. In addition to explaining the basic concepts of futures thinking, this workshop will help attendees recognize how to strengthen their ability to “anticipate” and imagine in new ways to understand,

map, and prioritize the factors affecting modern societies' views and treatment of nonhuman animals.

[Click here to register.](#)

Let's talk about AAI terminologies: Consensus and collaboration in research, practice and education

Friday, June 25th 10:00-18:00

Organizers: Melissa Winkle (melissa@dogwoodtherapy.com), Marie-Jose Enders-Slegers (Marie-Jose.Enders@ou.nl), Amy Johnson (johnson2@oakland.edu), Jo-Ann Fowler (director@iahao.org)

There is a history for a call for consistency in terminology related to theoretical foundations in animal assisted interventions (AAI). Among the different categories of animal assisted intervention, including animal assisted activities (AAA), education (AAE), therapy (AAT), coaching (AAC) and other categories lies much confusion.

In this workshop, we will consider current terminologies in animal-assisted interventions and how some of the differences in use and understanding impact research, practice and education. We encourage experienced practitioners, researchers, educators, program administrators to join us for a lively discussion and be part of a global, collaborative effort to establish consensus around AAI terminology and education.

[Click here to register.](#)

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Abstracts

Abstracts represent the information submitted by the corresponding author. Content has been checked for English, and on a few occasions corrected; not all submitted information was included. Appearance may have been changed for stylistic reasons.

Symposia

Click on the links below for a shortcut to a specific symposium.

[S1. COVID-19: Impact of the Human-Animal Bond on Human and Animal Well-Being -- Perspectives from the United States and the United Kingdom](#)

[S2. Can Dogs Play a Role in Improving Children's Learning and Socio-emotional Well-Being? Evidence from a Longitudinal, Randomised Controlled Trial](#)

[S3. Big Brains in Small Places: The Impact of Confined, Impoverished Environments](#)

[S4. University-Based Animal-Assisted Interventions \(AAIs\): Theory and Research Toward Identifying Direct and Indirect Effects of Active Components on Stress-Related Outcomes](#)

[S5. Symposium: Animal Welfare, Treatment Integrity, and Mechanism of Change: Pressing Issues in Equine-Assisted Intervention](#)

[S6. Pets and Human Suicide -- Emerging Complexities, Contradictions, and Multiple Intersections](#)

[S7. Research on Animals in Educational Contexts](#)

[S8. More than a Pet: "Pet Parenting" as an Emerging Family Practice](#)

S1. COVID-19: Impact of the Human-Animal Bond on Human and Animal Well-Being – Perspectives from the United States and the United Kingdom

11:45 - 13:15 Tuesday, 22nd June, 2021

Symposium Chair

Jane Murray

Dogs Trust, London, United Kingdom

Discussant

Lori Kogan

Colorado State University, Fort Collins, CO, USA

Description

The COVID-19 pandemic has involved lifestyle changes for many people. This symposium, which aligns with the conference's theme of "**Impacts of COVID-19 on the human-animal relationship**", presents research from the UK and US into HAI in relation to human health-care access, mental health and loneliness during COVID-19 restrictions, and to changes to the management/lifestyle of dogs. Our presentations detail a wide range of short-term impacts that COVID-19 has had on pet owners and dogs and highlights the need to study longer-term welfare impacts for humans and animals. (Transcript:

<https://drive.google.com/file/d/1Px7vgyYm06mfPEnyid58-jAu3R69I6e/view?usp=sharing>)

Presentation-1 shares results from quantitative and qualitative analysis of survey data collected from 2,254 US pet owners. Resource-constrained pet owners impacted by economic insecurity and/or poor social support were shown to be at a disproportionate risk for negative consequences to their health and well-being.

Presentation-2 presents a latent profile analysis of 1,915 US pet owners, categorised by mental health symptoms (well-adjusted, mild, moderate, high or severe symptoms) prior to and after the pandemic onset. While individuals with high attachment to pets pre-pandemic and moderate/high symptoms were more likely to transition to less severe symptoms, compared to those reporting low attachment, those with severe symptom profiles and high attachment fared worse.

Presentation-3 discusses results of data from 5,926 UK survey participants. Poorer mental health pre-lockdown was associated with a stronger reported human-animal bond; however, compared with non-ownership. Having a companion animal was associated with smaller negative impacts to mental health and loneliness following the introduction of COVID-19 lockdown restrictions.

Presentation-4 reports on dog management/ lifestyle prior to and during the UK's first COVID-19 lockdown using data from 6,004 dog owners. Changes observed included increased time with household members, increased time left-alone, reduced frequency/duration of walks and of play/training sessions. Physical environment and/or social support moderated these effects. In combination, these studies highlight the variable impacts of the human animal bond during the initial months of COVID-19, and the effects of individual characteristics (e.g. pre-existing mental health, attachment to companion animals, economic-security) and social (e.g. support networks) and physical (e.g. urban/rural) environments.

S1.1 The Impact of Social and Economic Resources on Human-Animal Relationships During COVID-19: Setting an Agenda for Future Research

Jennifer W. Applebaum¹, Shelby E. McDonald², Barbara A. Zsembik¹

¹University of Florida, Gainesville, FL, USA. ²Virginia Commonwealth University, Richmond, VA, USA

Introduction: The benefits and risks of living with pets during the COVID-19 pandemic have been an increasing focus of media and scholarly attention. However, the role of access to resources in the experience of pet ownership is often overlooked. In this presentation we synthesize findings from two studies on relationships with pets during the coronavirus crisis to set an agenda for future HAI research.

Methodology: We administered a survey to pet owners in the United States ($n = 2,254$) in April-July 2020 to assess the impact of relationships with pets on human health and wellbeing during COVID-19. Quantitative and qualitative methodologies were used to analyze closed-ended and open-ended responses to examine the impact of income, economic insecurity, and social support on interactions with pets during the pandemic.

Main Findings: Select findings are summarized here. *Healthcare:* Economic insecurity ($RRR=6.55$, $p<.01$) and social support ($RRR=0.96$, $p<.01$) predicted likelihood of delaying or avoiding COVID-19 healthcare due to concern for one's pet. *Pet Caregiving Stressors:* Stressors were coded into three themes: pet concerns (e.g., meeting pet needs), human concerns (e.g., pet interrupts work), and household concerns (e.g., disease spread). Income ($t(1869)=1.96$, $p<.05$), economic insecurity ($X^2(2)=17.96$, $p<.001$), and relationship status ($X^2(4)=31.85$, $p<.001$) were associated with the types of stressors reported.

Conclusions: Economic and social resources were important factors impacting various aspects of human-pet interactions during COVID-19 for this sample, which was comprised primarily of high-socioeconomic status, White women. Our findings suggest that resource-constrained pet owners may experience disproportionate risk for negative consequences to their health and wellbeing as a consequence of managing competing priorities. Given these findings, future research should 1. Collect data from representative samples of pet owners, and 2. Consider the impact of an insufficient social safety net and expanding economic inequality on human-pet relationships.

S1.2 Attachment to Pets Moderates Transitions in Latent Patterns of Mental Health Following the Onset of the COVID-19 Pandemic: Results of a Large Survey of U.S. Adults

Camie A. Tomlinson¹, Angela Matijczak¹, Jennifer W. Applebaum², Kelly O'Connor¹, Barbara A. Zsembik², Shelby E. McDonald¹

¹Virginia Commonwealth University, Richmond, VA, USA. ²University of Florida, Gainesville, FL, USA

Introduction: It is hypothesized that attachment to pets has implications for the wellbeing of pet owners during the COVID-19 pandemic. However, no study to date has examined whether, and to what extent, attachment to pets influences changes in adults' patterns of mental health symptoms during this public health crisis. We hypothesized that highly attached pet owners would be less likely to exhibit maladaptive patterns of change in psychological functioning following the onset of the pandemic.

Methodology: Latent profile analysis was used to identify subgroups of U.S. pet owners ($N=1915$) based on their patterns of mental health symptoms prior to and after the onset of the

pandemic. We used latent transition analysis to determine: (a) the stability of subgroup membership pre- and post-COVID and (b) the effect of attachment to pets on transition probabilities, adjusting for sociodemographic factors.

Main Findings: Five subgroups were identified: well-adjusted, mild symptoms, moderate symptoms, high symptoms, and severe symptoms. Evidence of moderation was found $X^2(16) = 41.47, p = .04$. Among individuals in the moderate and high symptom subgroups, those who reported high attachment to pets generally had greater odds of transitioning to a less severe symptom profile ($OR = 2.12$) over time than those with low attachment to pets ($ORs = 1.39$). Those who had a severe symptom profile and high attachment to pets had lower odds of transitioning to a less severe symptom profile ($OR = .30$) and higher odds of maintaining a severe symptom profile ($OR=3.33$) than those with low attachment to pets.

Conclusions and Implications: Our results indicate that stronger attachments to pets may have functioned as a protective factor for people with moderate and high levels of mental health symptoms prior to the COVID-19 pandemic; however, those with severe symptom profiles and high attachment to pets fared worst in the context of COVID-19 restrictions.

S1.3 Human-Animal Relationships and Interactions During the Covid-19 Lockdown Phase in the UK: Investigating Links with Mental Health and Loneliness

Elena Ratschen¹, [Emily Shoesmith](#)¹, Lion Shahab², Karine Silva³, Dimitra Kale², Paul Toner⁴, Catherine Reeve⁴, Daniel S Mills⁵

¹The University of York, York, United Kingdom. ²University College London, London, United Kingdom. ³The University of Porto, Porto, Portugal. ⁴Queen's University Belfast, Belfast, United Kingdom. ⁵The University of Lincoln, Lincoln, United Kingdom

Background: The Covid-19 pandemic raises questions about the role that relationships and interactions between humans and animals play in the context of widespread social distancing and isolation measures. We aimed to investigate links between mental health and loneliness, companion animal ownership, the human-animal bond, and human-animal interactions; and to explore animal owners' perceptions related to the role of their animals during lockdown.

Methods: A cross-sectional online survey of UK residents (aged 18+ years) was conducted between April and June 2020. The questionnaire included validated, bespoke items measuring demographics; exposures and outcomes related to mental health, wellbeing and loneliness; the human-animal bond and human-animal interactions.

Results: Of 5,926 participants, 5,323 (89.8%) had at least one companion animal. Most perceived their animals to be a source of considerable support, but concerns were reported related to various practical aspects of providing care during lockdown. Strength of the human-animal bond did not differ significantly between species. Poorer mental health pre-lockdown was associated with a stronger reported human-animal bond ($b = -.014, 95\% CI [-.023 - -.005], p = .002$). Animal ownership compared with non-ownership was associated with smaller decreases in mental health ($b = .267, 95\% CI [.079 - .455], p = .005$) and smaller increases in loneliness ($b = -.302, 95\% CI [-.461 - -.144], p = .001$) since lockdown.

Conclusion: The human-animal bond is a construct that may be linked to mental health vulnerability in animal owners. Strength of the human-animal bond in terms of emotional closeness or intimacy dimensions appears to be independent of animal species. Animal ownership seemed

to mitigate some of the detrimental psychological effects of Covid-19 lockdown. Further targeted investigation of the role of human-animal relationships and interactions for human health, including testing of the social buffering hypothesis and the development of instruments suited for use across animal species, is required.

S1.4 Impacts of COVID 19 on Dog-Human Interactions and Support for Dogs

Robert Christley, Jane Murray, Katharine Anderson, Emma Buckland, Rachel Casey, Naomi Harvey, Lauren Harris, Katrina Holland, Kirsten McMillan, Rebecca Mead, Sara Owczarczak-Garstecka, Melissa Upjohn
Dogs Trust, London, United Kingdom

Introduction. Restrictions during the COVID-19 pandemic prompted lifestyle changes which we hypothesised might impact dog-human interactions.

Methodology. Data concerning dog management prior and during the UK's first COVID-19 lockdown were collected via an online survey of 6004 dog-owners (4-12 May 2020); 2582 completed a follow-up survey (10-October to 2-November). Descriptive statistics, multivariable logistic regression and cluster analyses were used to examine impacts of COVID-19 restrictions on the lives of dogs.

Main Findings. Dogs' lives were influenced in multiple ways by COVID-19 restrictions. Dogs spent more time with their household adults (70% of dogs) and household children (86% of dogs living with children). Other changes included decreased frequency ($p<0.001$) and duration ($p<0.001$) that dogs were left alone, reduced frequency ($p<0.001$) and duration of walks ($p<0.001$), decreased interaction with other dogs ($p<0.001$) and less opportunity for off-lead exploration ($p<0.001$). Frequency of play/training sessions was greater during lockdown ($p<0.001$).

Some of these changes were influenced by physical environment and/or social support. Reduced walking duration/frequency were least likely to be reported for dogs in rural, compared with those in city/urban areas ($p<0.001$), and for dogs with more ready access to off-lead walking areas ($p<0.001$). Increased play/training was most likely for dogs in suburban areas ($p=0.001$). Dogs with more household adults were less likely to have reduced walking duration/frequency ($p<0.001$), and around 1-in-8 respondents recruited additional dog-walkers during lockdown. Follow-up survey data revealed 8% and 4% of owners had no-one to help walk or care for their dog if needed, respectively; and 1% and 0.5% had wanted help walking or caring for their dog, respectively, but could not access help.

Principal Conclusions and Implications for Field. COVID-19 lockdown was associated with many changes to pet-dog management related to physical and social environments. These changes may impact immediate and longer-term dog welfare.

S2. Can Dogs Play a Role in Improving Children's Learning and Socio-emotional Well-Being? Evidence from a Longitudinal, Randomised Controlled Trial

13:45 - 15:15 Tuesday, 22nd June, 2021

Symposium Chair

Kerstin Meints

University of Lincoln, Lincoln, United Kingdom

Discussant

Sabrina Schuck

University of California, Irvine, Irvine, CA, USA

Description

While animal-assisted interventions in schools have increased in popularity in recent years, systematic, longitudinal research assessing intervention effects is limited. Effects of dog-assisted interventions on cognitive abilities or socio-emotional factors are under-researched. Likewise, systematic comparison of typically developing children and those with special educational needs (SEN) is sparse and it is unclear if individual interventions work better than group interventions. We will present results of a large-scale, longitudinal RCT project in mainstream and SEN schools. We will embed our work in theory and recommend areas of useful implementation of dog-assisted interventions. The symposium comprises of 3 presentations followed by a discussant.

In each of the presented studies, children aged 8-10 years were assigned to either a dog-assisted intervention, a relaxation intervention or a no-treatment control condition via stratified randomisation. Interventions took place twice per week for 20 mins, over 4 weeks. We measured longitudinally (before and after interventions, after 6-weeks, 6-months and 1 year) and explored which types of interventions worked best (individual or small groups). Extensive safety training was provided, protocols ensured treatment fidelity and dogs' and humans' welfare and safety was safeguarded throughout.

The first presentation reports effects of dog-assisted interventions on categorisation with 105 children in mainstream schools and 68 children in SEN schools. Children took part in a categorisation task and effects of typicality, animacy and intervention condition (dog intervention, relaxation intervention or no treatment control) are reported.

The second presentation demonstrates intervention effects on executive functioning employing a range of Stroop tasks with typically developing children in mainstream schools (N=105) measuring interference effects and processing speed effects.

The third presentation highlights the effects of dog-assisted interventions on self-esteem and anxiety as measured by standardised questionnaires in both cohorts (105 children in mainstream schools and 42 children with SEN).

Our discussant will highlight and integrate the contributions. They will provide a commentary and explore how the presented research can help to advance the topic area. They will comment on the efficacy of dog-assisted interventions and highlight benefits for the field including, for example, benefits for dog handlers, dog-assistance providers and recipients, schools and policy-makers.

S2.1 Do Dog and Relaxation Interventions Affect Categorisation in Children with and Without Special Educational Needs? Evidence from a Longitudinal, Randomised Controlled Trial

Kerstin Meints¹, Victoria L Brelsford¹, Mirena Dimolareva², Nancy R Gee³

¹University of Lincoln, Lincoln, United Kingdom. ²Bishop Grosseteste University Lincoln, Lincoln, United Kingdom. ³VCU, Richmond, United Kingdom

Introduction: Categorisation is essential to human functioning, learning and development. While the immediate presence of a dog can help children's performance during categorisation and object recognition tasks, it is unclear if effects endure after the dog is no longer present. The current study investigates intervention effects on categorisation in children with and without special educational needs (SEN).

Method: Children (8-10 years) in mainstream (N=105) and SEN schools (N=68) participated in a categorisation task. Test items' typicality and animacy varied systematically. Testing was conducted before and after interventions, at 6 weeks, 6 months and 1 year. Via stratified randomisation children were assigned to a dog-assisted intervention (DAI), a relaxation intervention (RI), or no treatment control condition. Interventions were 20 minutes twice/week over 4 weeks. Safety training was provided, protocols ensured treatment fidelity, safety and welfare of all was safeguarded.

Main results: Mainstream school children showed significant improvement in reaction times (RT) and significant gender effects with girls faster than boys. Typicality and animacy main effects confirmed categorisation speed is faster with typical ($F(1,78)=286.68, p<.001, \eta^2=.786$) and animate items ($F(1,78)=86.249, p<.001, \eta^2=.525$). Importantly, children in the dog and relaxation conditions showed significant decreases in RT from baseline to after interventions (DAI: $p=.002, d=.51$; RI: $p=.001, d=.63$) compared to the control group which showed no significant improvements. Children with SEN showed similar improvements over time, however, beneficial effects for dog or relaxation interventions did not reach significance. SEN children had significantly slower RT compared to mainstream school children, but showed most improvement at the 1-year test point.

Principle conclusion and implications: These results are the first to demonstrate improved reaction times in typically developing school children that can be measured after the end of interventions, thus evidencing how dog-assisted and relaxation interventions can positively affect even fundamental categorisation processes.

S2.2 Effects of Animal-Assisted Interventions on Executive Functioning in School Children: A Longitudinal, Randomised Controlled Trial

Victoria L Brelsford¹, Kerstin Meints¹, Nancy R Gee²

¹University of Lincoln, Lincoln, United Kingdom. ²Virginia Commonwealth University, Richmond, Virginia, USA

Introduction: Executive functions are central to human thinking and behaviour. While some research has demonstrated positive effects of animals on cognitive, social and physiological measures in school children, there is no systematic research on effects of animal-assisted interventions (AAI) on executive functioning and inhibitory control. The current research pioneers the investigation of animal-assisted intervention effects on executive function in school children.

Method: We tested 105 8-10-year-old children longitudinally (before and after intervention, at 6 weeks, 6 months, 1 year) using the Fruit Stroop task. Interventions took place twice per week/20 minutes, over 4 weeks). Children participated in either a dog intervention, relaxation intervention or no treatment control. In-depth safety training was provided to all involved, safety and welfare safeguarded and protocols ensured treatment fidelity.

Main results: Significant improvements were found in interference scores after dog intervention ($t(19)3.281$; $p=.004$), while children in relaxation and no treatment control conditions failed to show improvements ($t(19)=.061$, $p=.952$) and ($t(27)=-1.400$, $p=.173$) respectively). Global interference and speed of processing scores showed general improvement over time, interestingly, with children in the dog intervention exhibiting slower performance speed ($F(2,58)=3.264$, $p=.045$, $\eta_p^2=.101$), but improved interference scores on the congruency task, showing beneficial effects of individual dog interventions on children's processing abilities. Interference showed more reductions in one-to-one interventions than in small group interventions.

Principle conclusion and implications: This research is the first to show that dog-assisted interventions have positive, moderating effects on executive functioning in school children. Whilst group interventions could provide cost savings and reduce the number of hours needed by staff, dogs and handlers, the current study suggests that one-to-one interventions confer an advantage in AAI sessions. The research presented here could assist the development of specifically designed interventions to support children within educational settings.

S2.3 Effects of Dog-Assisted Interventions on Self-Esteem and Anxiety in Children with and Without Special Educational Needs: A Longitudinal, Randomised Controlled Trial

Mirena Dimolareva¹, Victoria L Brelsford², Nancy R Gee³, Kerstin Meints²

¹Bishop Grosseteste University, Lincoln, United Kingdom. ²University of Lincoln, Lincoln, United Kingdom. ³Virginia Commonwealth University, Richmond, Virginia, USA

Introduction: Animal-assisted interventions (AAI) may improve self-esteem in children and have resulted in positive effects on classroom function. However, there is little research assessing the impact of AAI on children's self-esteem and anxiety. This longitudinal study examines dog-assisted intervention effects on children's anxiety and self-esteem.

Method: Children in mainstream ($N=105$) and special educational needs (SEN) schools ($N= 42$) were assigned to either a dog-assisted intervention (DAI), relaxation intervention (RI) or no-treatment control using stratified randomisation. Interventions took place 2x20mins/week for 4 weeks. Standardised questionnaires were used before and after interventions, at 6-weeks, 6-months, 1 year. Safety training was provided, welfare and safety safeguarded, protocols ensured treatment fidelity.

Main results: Overall, children's self-esteem increased and anxiety decreased over time, with initially lower self-esteem and higher anxiety in girls, and higher gains for girls compared to boys. Children in mainstream schools showed beneficial effects of DAI and RI on self-esteem and anxiety from intervention end to 6 weeks later. Self-esteem increased (DAI: $p<.021$; $d=.39$, CI[-1.32,-.114]; RI: $p<.018$; $d=.40$, CI[-1.67,-.166]) and anxiety decreased (DAI: $p<.021$; $d=.39$, CI[-.049,-.004]; RI: $p<.011$; $d=.44$, CI[-.056,-.008]) while control group children showed no significant changes.

Children with SEN showed no increase in self-esteem or decrease in anxiety over time, nor did interventions increase self-reported self-esteem or decrease anxiety. It is noteworthy, that children in interventions showed stability over time while no treatment controls showed fluctuation and declining self-esteem with significant reductions from 6 weeks to 6 months ($p < .007$). No differences between individual or group interventions were found.

Principle conclusion and implications: Benefits of DAI and RI on children's anxiety and self-esteem were found for typically developing children and a stabilising effect occurred in children with SEN. Further research needs to investigate how to modulate interventions for SEN populations to increase self-esteem and decrease anxiety.

S3. Big Brains in Small Places: The Impact of Confined, Impoverished Environments on Large, Complex Brains

15:45 - 17:15 Tuesday, 22nd June, 2021

Symposium Chair

Lori Marino

Whale Sanctuary Project, Kanab, Utah, USA

Discussant

Syd Johnson

Upstate Medical University, Syracuse, New York, USA

Description

Abundant empirical evidence demonstrates the harmful neurobiological effect of captive, impoverished environments across a wide range of species. In this symposium, we explore the negative effects of confinement in zoos and aquariums on the brains of long-lived, large-brained mammals (i.e., elephants, cetaceans) and ways to remedy these consequences. We present and discuss the general neural mechanisms operating in all brains subjected to chronically stressful, impoverished, and highly artificial environments. We identify the specific harms associated with these environments for, specifically, captive elephants and cetaceans and explore how these detrimental effects can inform our understanding of both the neurobiological and associated medical/behavioral problems observed in cetaceans and elephants confined to concrete tanks and small enclosures. We then discuss the problematic ethics of captive cetaceans and elephants in light of such harm as well as how we can use our current knowledge about the needs of elephants and cetaceans to develop enriched sanctuary environments.

S3.1 Neurocaptivity: The Impoverishment of the Brain

Bob Jacobs

Colorado College, Colorado Springs, CO, USA

The present review focuses on the negative effects of captivity (as manifested in zoos and aquariums) on the brains of long-lived, large-brained mammals (e.g., cetaceans and elephants). Three areas of neuroscience research are reviewed: (1) The effects of environmental enrichment on the brain—although this research typically emphasizes the positive side of enrichment in laboratory animals (e.g., the murid rodent), the negative neural consequences of impoverishment (typical of captive environments) are infrequently considered, especially with regard to large-brained mammals. (2) The neural consequences of stress, with an emphasis on limbic system structures (e.g., the hippocampus and amygdala). (3) The neural underpinnings of stereotypies, often observed in captive animals, with a focus on the malfunctioning of the basal ganglia and associated circuitry. The current evidence suggests the neural consequences of an impoverished/captive environment for long-lived individuals with large, complex brains integral to their intricate sociobehavioral existence are substantial and detrimental to the animals' overall well-being.

S3.2 The Neuropsychiatric Consequences of Impoverished Environments in Mammals

Lori Marino

Whale Sanctuary Project, Kanab, UT, USA. Kimmela Center for Animal Advocacy, Kanab, UT, USA

Impoverished environments result in adverse neuropsychiatric effects in all mammals, including humans. Solitary confinement and impoverished early environments are strongly associated with adverse psychological effects such as self-harm and suicidal ideation and behavior. It is also associated with increases in hostility, anxiety, and psychosis. Neuroimaging of adopted orphans who were initially raised in an impoverished environment indicates abnormal activity in several key brain regions involved in social and cognitive processes, including the orbital frontal gyrus, the infralimbic prefrontal cortex, and the amygdala, and the hippocampus. White matter pathways that connect limbic and paralimbic brain regions are also affected, and these effects are associated with length of deprivation. Given that the functions of many of these brain structures, particularly those within the limbic system, are conserved among humans and other mammals, it is possible that the aberrant behaviors observed in large-brained mammals kept in impoverished environments may be a result of similar detrimental effects on their brains. Additionally, their pathological behaviors, in many instances, mirror those of humans who experience impoverished environments. As in humans who receive treatment for trauma, these behaviors may improve with appropriate interventions, which may include enrichment of the environment or placement of the affected individual in a sanctuary.

S3.3 Consequences of Impoverished Environments for the Physical Health of Captive Elephants and Cetaceans: Evidence of Neurobiological Harm?

Heather Rally

Foundation to Support Animal Protection, Norfolk, VA, USA

This presentation reviews the behavioral and physical illnesses commonly afflicting captive elephants and cetaceans housed in impoverished environments. Stereotypic behavior, a form of pathology that often develops in animals confined to stressful and/or deprived conditions, is linked to brain dysfunction associated with the basal ganglia and dysregulation of behavioral control mechanisms. These behavioral manifestations of neurobiological dysfunction are a common occurrence in captive elephants and cetaceans. Stereotypic behavior in these species is often directly injurious to the animals, with stress-related physiological changes enhancing susceptibility to disease. This coupled with the challenges of providing preventative and curative veterinary care to animals in impoverished conditions, results in dramatic consequences for captive elephant and cetacean health. Here, we review the diseases specific to captive elephants and cetaceans – including injuries, dental disease, degenerative disease, and infection – as well as evidence for the causal link between these diseases and captive environments, captivity-related stress, and/or animal management conditions. Even with qualified veterinary intervention, these physical ailments are frequently difficult to prevent, treat, and cure so long as the animals remain in impoverished captive environments. Thus, the chronic health insults experienced by captive elephants and cetaceans tend to be cumulative and progressive, resulting in the deterioration of animal health, debilitation, and even in premature death.

S4. University-Based Animal-Assisted Interventions (AAIs): Theory and Research Toward Identifying Direct and Indirect Effects of Active Components on Stress-Related Outcomes

11:00 - 12:30 Wednesday, 23rd June, 2021

Symposium Chair

Patricia Pendry

Washington State University, Pullman, WA, USA

Discussant

Nancy Gee

Virginia Commonwealth University, Richmond, VA, USA

Description

The implementation of university-based Animal Assisted Interventions (AAIs) has surged. Randomized controlled trials (RCTs) have found positive effects on student outcomes including perceived stress, social support, mood, physiological stress-system activity, and well-being. While promising, the extent to which findings inform implementation of college-based AAIs is limited as the AAIs studied varied dramatically by type of interaction, setting, dosage, frequency, etc. Furthermore, we do not know what the active treatment components of AAIs are, since few studies have assessed 'isolated' contributions of direct and indirect AAI components (e.g., touch, social engagement with peers, stress diversion). This symposium presents a pathway model for understanding direct and indirect effects of AAIs targeting college-students' stress-related outcomes. Next, it presents findings from two RCTs that isolate contributions of components of AAIs on targeted outcomes using creative research designs. The model's rationale and studies' research designs and findings will be discussed in the context of methodological approaches towards identifying active AAI components.

Presentation 1 presents the Touch, Expect, and Support Theory (TEST), a pathway model that proposes that AAIs provide physiological downregulation of multiple stress-reactive systems through TOUCH, over and above contributions of animal-to-human and human-to-human SUPPORT. TEST posits that the strength of these physiological effects is influenced by EXPECTANCY- participants' belief that animals and/or humans facilitate stress-reduction. Study 2 presents physiological responses (cortisol, alpha amylase) of undergraduate participants in an animal visitation program assigned to one of four conditions to isolate treatment effects of Touch (hands-on petting), Proximity (observing others pet while proximal), Observation (observing still images) or a control condition (waiting without stimuli). Study 3 presents effects on participants' wellbeing in response to one of two canine interaction conditions (touch or no touch) or one without a therapy dog. Each of the presentations in this symposium focuses on rationales and designs that isolate direct and indirect AAI components while examining causal effects on college-students stress-related outcomes. Our discussant is a leader in the field who will provide a critical but constructive perspective on symposium presentations and provide guidance for cutting-edge research design furthering this aim.

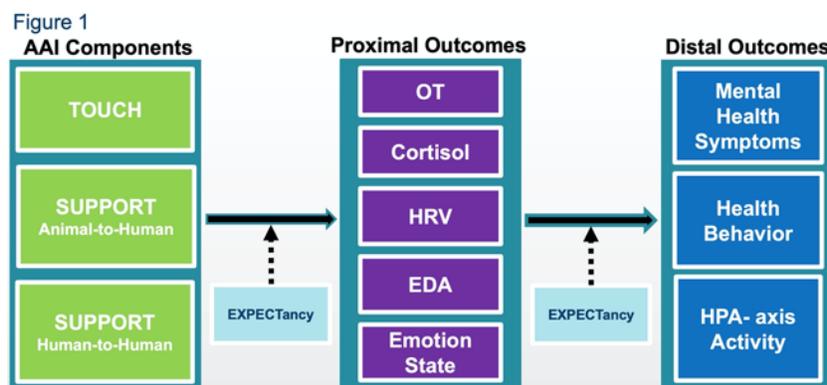
S4.1 Touch Expect and Support Theory (TEST): A Pathway Model Describing Active Components of University-Based Animal Assisted Interventions on Proximal and Distal Stress-Related Outcomes

Patricia Pendry

Washington State University, Pullman, WA, USA

There has been an increase in university-based Animal Assisted Interventions (AAIs) to reduce student stress and stress-related symptoms. While efficacy trials have shown positive effects of AAI, few studies have examined which AAI-components underlie these effects. Empirical work that isolates effects of AAI-components through robust comparison conditions is extremely rare due to a lack of conceptual models guiding such research designs.

This presentation introduces a theoretical model titled **Touch Expect and Support Theory (TEST)**, which proposes that AAIs provide physiological downregulation of multiple stress-reactive systems (e.g., Sympathetic Nervous System, Parasympathetic Nervous System, and Hypothalamic-Pituitary-Adrenal (HPA-axis) primarily through affectionate **TOUCH**. TOUCH includes human-to-animal touch (e.g., petting, stroking, scratching, embracing, keeping animal on one's lap etc.) and animal-to-human touch (e.g., rubbing one's face/body against the human; licking; positioning one's body to tactilely perceive the human etc.). A secondary component of AAI is **SUPPORT**, which includes animal-to-human support by initiating or accepting bids for attention, play, attentiveness when talked to, and/or otherwise indicating responsiveness to human presence. It also includes the human-to-human support by peers and/or animal handlers including emotional support (e.g., reassurance of worth, empathy, belonging, affection) and appraisal/informational support (i.e., advice, guidance, feedback). TEST proposes that TOUCH has the most significant impacts on proximal physiological regulation over and above contributions of animal-to-human and human-to-human SUPPORT through immediate release of Oxytocin (OT), suppression of cortisol, impacts on heart rate variability (HRV), Electrodermal Activity (EDA), and emotion states, which mediate potential changes in distal outcomes (e.g., mental health symptoms, physiological regulation, health behavior). **EXPECT** - participants' belief that animals or humans may facilitate stress reduction- is posited as moderating these effects. The presentation will present a theoretical and empirical rationale for the model and provide methodological strategies for designing research studies that can falsify this model.



S4.2 Teasing Out Effective AAI Components of a University-Based Animal Visitation Program on Students' Physiological Arousal and Regulation

Jaymie L Vandagriff, Patricia Pendry
Washington State University, Pullman, WA, USA

Background: Universities worldwide have documented a rise in students' distress and treatment-seeking. Animal visitation programs (AVPs) are a popular yet empirically under-investigated approach to address this need. While efficacy trials suggest positive effects of AVPs, how AVPs work and which components are essential to stress reduction is unknown.

Method: Before finals week, students were randomly assigned to one of four 10-minute conditions: Touch AVP (petting shelter cats and dogs; $n=73$), AVP Proximity (watching others pet animals; $n=62$), AVP Imagery (viewing images of same animals; $n=57$), or AVP Waitlist (waiting without stimuli $n=57$). Participants collected salivary cortisol (Cort) and alpha-amylase (sAA) samples upon waking and at 15 and 25 minutes post-AVP to reflect pre- and posttest Cort and sustained post-condition sAA. Parameters associated with adaptive regulation were calculated including Area Under the Curve and sAA-to-Cort ratios.

Results: Regression analyses with Touch as the reference group showed students in all three comparison groups ($\beta_{\text{proximity}} = -.175$, $p = .017$; $\beta_{\text{waitlist}} = -.138$, $p = .051$; $\beta_{\text{imagery}} = -.214$, $p = .003$, $p < .001$) had lower +25min sAA and lower sAA-to-Cort ratios from pre- to posttest ($\beta_{\text{proximity}} = -.277$, $p < .001$; $\beta_{\text{waitlist}} = -.172$, $p = .014$; $\beta_{\text{imagery}} = -.307$, $p < .001$), lower sAA-to-Cort ratios from wakeup to posttest ($\beta_{\text{proximity}} = -.135$, $p = .010$; $\beta_{\text{waitlist}} = -.117$, $p = .021$; $\beta_{\text{imagery}} = -.150$, $p = .004$), and a smaller sAA increase from wakeup to posttest ($\beta_{\text{proximity}} = -.216$, $p = .001$; $\beta_{\text{waitlist}} = -.130$, $p = .033$; $\beta_{\text{imagery}} = -.247$, $p < .001$). Wakeup values of Cort, sAA, and sampling time were controlled in all models.

Conclusion: Since sAA levels rise in response to emotional arousal and positive mood, while a higher sAA-to-Cort ratio is considered protective, these results suggest touching is the primary AAI component facilitating adaptive physiological states.

S4.3 The Importance of Touch in On-Campus Canine-Assisted Stress-Reduction Interventions: A Randomized Controlled Trial

John-Tyler Binfet, Freya L. L. Green, Zakary A. Draper
University of British Columbia, Kelowna, BC, Canada

Introduction. On-campus canine-assisted stress-reduction programs are popular and there is emerging research indicating that attending these programs and petting therapy dogs within sessions can significantly reduce the salivary cortisol levels of visitors (Pendry & Vandagriff, 2019). Touch within sessions appears to be an important aspect of interactions but can being in close proximity to therapy dogs also elicit well-being benefits? The aim of this study was to assess the impact of direct and indirect client-canine contact on well-being outcomes in a sample of 284 college undergraduate students.

Methodology. Participants self-selected to participate in the study and were randomly assigned to one of two canine interaction treatment conditions (touch or no touch) or to a condition with no therapy dog present. Pre-, post-, and follow-up measures of well-being were administered and

included scales of flourishing, positive and negative affect, social connectedness, happiness, stress, homesickness, and loneliness.

Main results/findings. Analyses using scores on the well-being factor indicated significant improvement in well-being across all conditions (handler-only, $d = 0.18$, $p = .041$; indirect, $d = 0.38$, $p < .001$; direct, $d = 0.78$, $p < .001$), with greater benefit when a canine was present ($d = 0.20$, $p < .001$), and the most benefit coming from physical contact with the dog ($d = 0.13$, $p = .002$). Results indicate that participants across all conditions experienced enhanced well-being however direct interactions with therapy dogs through touch elicited greater well-being benefits than did no touch/indirect interactions or interactions uniquely with a dog handler.

Principal conclusions and implications for the field. The findings hold implications for the delivery of canine visitation programs on college campuses and inform how sessions might be structured to allow for direct interaction through touch to optimize well-being benefits for students.

S5. Symposium: Animal Welfare, Treatment Integrity, and Mechanism of Change: Pressing Issues in Equine-Assisted Intervention

13:30 - 15:00 Wednesday, 23rd June, 2021

Symposium Chair

Angela Fournier

Bemidji State University, Bemidji, MN, USA

Discussant

Anastasia Georgiades

Duke University, Durham, NC, USA

Description

The field of equine-assisted intervention is expanding – in practice and scholarship. With a growing number of practitioners trained in a variety of methods, there is significant variability from program to program, session to session, and study to study. Calls for critical examination of outcomes and clarity in mechanisms of change are abundant (e.g., Anestis et al., 2014; Griffin et al., 2019; Serpell et al., 2017). In addition, growing concerns for therapy-animal welfare (e.g., Malinowski et al., 2018; Wilson, 1970) necessitate analysis of interventions from the perspective of the animal. Through original research and critical review, this symposium addresses animal welfare, treatment integrity, and mechanisms of change in interventions incorporating horses. Presentation #1 describes an experiment in which college student volunteers (N = 31) participated in an experiential learning session incorporating a horse or a dog. Observations of human-animal interaction will be discussed in the context of intervention process and animal welfare. Presentation #2 will address the importance of treatment integrity in equine-assisted intervention. The presentation will define treatment integrity, review relevant scholarship, and provide recommendations for development of treatment integrity measures. Presentation #3 describes a critical review of the scholarly literature on equine-assisted interventions. Published findings from the literature were examined, identifying articles in which theoretical perspectives on mechanism of change were addressed. Presentation #4 will introduce a new, integrative intervention theory – Equine-Assisted Story Transformation (EAST) – that explains the mechanisms of change during psychotherapy incorporating horses. The presentation will introduce the theory and discuss its development from the synthesis of clinical observations, clinician interviews, and scholarly reviews of the literature.

S5.1 Human-Animal Interaction in Equine-Assisted Intervention: Informing Intervention Process and Animal Welfare

Angela Fournier¹, Javiann Lewis²

¹Bemidji State University, Bemidji, MN, USA. ²Mankato State University, Mankato, MN, USA

Introduction. Animal-assisted intervention is an increasingly popular topic for clinical practice and research (Fine, 2019). However, experts call for greater understanding of just how therapy animals facilitate the intervention process (e.g., Anestis et al., 2014). In addition, research is needed to examine the impact of these interventions on animal welfare (Serpell et al., 2006). Therapy-animal species is relevant to both process and welfare, but scholarship on species-specific factors in animal-assisted intervention is sparse (Morrison, 2007). This research aims to fill these gaps.

Methodology. Animal-assisted learning sessions were conducted with either a horse or dog as the therapy animal. Researchers video recorded interactions between humans and animals, identifying patterns related to intervention process and animal welfare. Themes were systematically extracted from qualitative data via the constant comparative method (Brunner, 2014).

Main Findings. For both species, sessions consisted of significant periods of human-animal independence (e.g., > 50% of the session) punctuated by episodes of brief human-animal interaction. Researchers observed animal behavior patterns consistent with species type as predator/prey. Equine-initiated interactions were passive; body language was calm and muted. Canine-initiated interactions were more active; body language was animated. These behavior patterns will be discussed in terms of their impact on therapeutic process. Regarding therapy-animal welfare, human-animal interactions were analyzed in the context of symbiosis (Gorman, 2019), categorizing interactions as benefitting or harming humans and animals.

Principle Conclusions and Implications for the Field. Animal-assisted therapy can include a variety of human-animal interactions and the interactions may be species-specific. These interactions largely benefit the human and may negatively impact the animal by hindering or interrupting the animal's agency. Further research analyzing human-animal interaction is needed to promote clinical practice with animals that is both effective and ethical.

55.2 A Critical Review of Treatment Integrity in Equine-Assisted Interventions

Erica J. Gergely

Stable Living, LLC, Indianapolis, IN, USA

Introduction: There are numerous models of equine-assisted intervention practiced by professionals across the world, each with a common goal of helping people. While some conceptual or procedural similarities may exist across models, it is critical for each equine-assisted intervention to clearly and unambiguously specify the key components and techniques that define and distinguish their approach. Without an explicit description of the procedures, tasks, and activities prescribed within the model, it would be difficult to differentiate one equine-assisted intervention from another. Further, it would be challenging to assess whether or not the model was being delivered reliably or competently, and therefore impossible to reach accurate conclusions about the effectiveness of the intervention or to replicate a program with hopes of gaining the same outcomes.

Methodology: This presentation will introduce the concept of treatment integrity - a construct that describes the extent to which an intervention is delivered competently and as intended. It also considers whether treatments differ from each other theoretically and along critical dimensions. The presentation will discuss the importance of treatment integrity in the field of equine-assisted intervention. Relevant scholarship will be reviewed and recommendations for assessing treatment integrity will be provided.

Conclusion: The development of tools to assess treatment integrity for equine-assisted interventions would mitigate many methodological issues that compromise efforts in evaluating the effectiveness of these treatments. A treatment integrity measure would provide a systematic method for collecting, analyzing, and answering questions to better understand and harness factors that influence outcome. For example: What will practitioners actually do? How will

practitioners be trained in the intervention? How will we determine when practitioners have been trained well enough to competently deliver the intervention? Are clients benefitting from the intervention? Does the intervention work? Do practitioners maintain adherence to training over time? Would practitioners benefit from ongoing coaching/training?

S5.3 What Works? Presenting Theories of Mechanism of Change of Psychotherapy Using Equines Found Within the Academic Literature

Michelle D Garner

University of Washington Tacoma, Tacoma, WA, USA

Introduction: Interest in and offerings of psychotherapy using horses are growing. Testimonials of effectiveness abound, but the research base maintains gaps. A central question of intervention research is that of the mechanism of change. What is it about this work, about horses, that is catalyst for psychological gains? Without knowing this, issues of delivering the right intervention elements, at the right time, frequency, and magnitude (dose) cannot be determined, making generalizability, efficacy, and efficiency elusive.

Methods: A key-word literature search in Web of Science with “horse* OR equine” in the title and “psycho*” in the abstract yields 127 peer reviewed publications published between 2011 and 2021. Resulting abstracts were screened for relevance, then full texts systematically evaluated chronologically for novel explanation, or theory of change mechanism, in psychological interventions using equines.

Findings: A number of hypotheses about why horse-included psychotherapy is effective appear in the academic literature. Kendall, Maujean, Pepping & Wright (2014) suggest that three categories of change catalyst exist: 1) mechanisms that are present, but not directly linked to the horse, 2) mechanisms that are effective in the context created by the presence of horse(s), and 3) mechanisms emerging from the horse(s) themselves. All theories of change identified in the systematic analysis will be presented, within this three-category framework.

Implications for the field: Researchers and practitioners alike should consider what elements of equine-assisted interventions are catalytic of positive change. For example, if one believes that an imposing relative size of a standard horse spurs psychological insights, then swapping in mini horses is not a comparable therapy. The present analysis illuminates the explanations of potent elements of psychotherapy using equines offered in a representative sample of the academic literature of the last decade, and can help clarify future work in the field – both the pasture and laboratory.

S5.4 EAST: An Integrative Intervention Theory for Psychotherapy Incorporating Horses

Noreen W Esposito

University of North Carolina at Chapel Hill (emerita) & Knowing Horse, Chapel Hill, NC, USA

Introduction: When interventions have several interacting parts they are considered complex interventions. These interventions can become more complex when there is need for intervention flexibility, for example when used with different populations or in different settings. Equine-assisted psychotherapy that incorporates human clients, facilitators, and horses in interaction with each other is a complex intervention. Complex interventions with many moving parts often require

the integration of multiple theories to explain how the intervention works. The purpose of this presentation is to introduce an integrative intervention theory that explains the mechanisms of change during psychotherapy incorporating horses.

Methodology: The complex intervention theory presented here is drawn from the synthesis of clinical observations, clinician interviews and scholarly reviews of literature. It integrates several theories that are divided into three sections. These include a theory of the problem (what the client and horse come with), theories that explain the intervention (what is done during a session) and theories that explain change (what happens in the mind of a client during and after a session). The function of each theory within the sections is individually described and then the individual theories are combined in a particular way to form a new theory – Equine-Assisted Story Transformation (EAST). EAST is a synthesis of existing theories that together provide an explanation for how equine-assisted interventions may lead to change.

Conclusion: EAST gives us a mechanism of change that will offer researchers and clinicians a common theoretical perspective thus filling a critical gap in the field of psychotherapy and related approaches that incorporate horses.

S6. Pets and Human Suicide -- Emerging Complexities, Contradictions, and Multiple Intersections

16:30 - 18:00 Wednesday, 23rd June, 2021

Symposium Chair

Janette Young

University of South Australia, Adelaide, South Australia, Australia

Discussant

Janette Young

University of South Australia, Adelaide, South Australia, Australia

Description

Considerations regarding the intersections of human suicide and companion animals is still in its infancy with few published studies focussing on this unique cross-species connection. Research that does exist indicates that it is a complex, multi-faceted and even contradictory scenario with pets as potentially protective (Young et al., 2020) but also victims when humans suicide (Cooke, 2013). The “pet-effect” is not always positive.

This session brings together the sparse published research in this area with current and preliminary research using publicly accessible information as a means of circumventing some of the key ethical concerns involved in initially researching the topic of human suicide, particularly that of accessing bereaved family and close contacts.

The Chair will introduce the topic and speakers, taking care to caution participants to be mindful of the risk of emotive triggers that discussion of suicide can prompt. The introduction will provide a broader context for the topic including global data on suicide. Presentation #1 will overview published positive research findings on the intersections of human suicidality and pets including suicide protection/prevention and helping to recover from attempts.

Presentation #2 will shift the focus to the topic of human suicide and pets presenting international online media reports of extended suicides (including killing a pet(s)). This research provides a snapshot of the intersection of this topic with another dark side of pets; that of family murder-suicides and human suicide involving pet(s). This is followed by flash presentation #3 presenting the small body of public reports of suicides of young people linked to pet deaths. Presentation #4 presents research undertaken in 2021 looking for mentions of pets in publicly accessible coroners reports investigating possible suicide deaths in Australia. All three of these preliminary, distanced research projects indicate paths for future investigation and awareness with regard to human suicidality and pets.

A translational approach (presentation #5) will round off the session summarising what is known and what gaps bear exploration in the interests of improving clinical human and animal services, and preventative responses to suicide, enhancing the lives of distressed humans and safeguarding the lives of their pets.

S6.1 A Brief Overview of the Emerging Positive Connections Between Pets and Human Suicidality: An Intensely Positive Pet Effect

Janette O. Young¹, Em Bould²

¹University of South Australia, Adelaide, South Australia, Australia. ²Monash University, Melbourne, Victoria, Australia

Introduction: The intersection of human suicidality with the lives of animals that live with these people is an emotive but understudied area. Suicide is a global tragedy with the WHO reporting that every 40 seconds one person dies from suicide with a further 20 estimated to have attempted suicide. While this is a human tragedy, as will be discussed in the other presentations of this symposium, pet animals may be included (i.e. animal lives ended) in human suicidal actions. However, this talk focusses on the positive “pet effects” of this intersection of human and animal lives.

Methodology: This presentation extrapolates from a broader systematic scoping review on pets and suicide. Here the focus will be on the on the small number of articles that have overtly focussed on or noted as an addendum to other foci, the positive connections that can exist between pets and human protection from suicide and recovery from attempts.

Main Findings: Pets can be a form of protection for some people, some of the time, when humans are considering suicide; reducing the likelihood of human-beings choosing to end their own life when highly suicidal. Pets may also be important in human recovery from suicide attempts. However, at present, we have little understanding of for who, how and when pets may be a positive factor in this space.

Principal Conclusions and Implications for the Field: Understanding the complex interplays between close human and animal lives in the field of suicidality is important in protecting both human and animal lives. There is a need to explore further when, how and for whom human-animal relationships are protective in this regard. This includes lifespan perspectives including human and animal ages/age groups, length of relationships, and species-specific factors.

S6.2 Extended Suicides Involving Pets: An Analysis of News Reports

Harold Herzog¹, Tamara Montrose², Janette Young³, James Oxley⁴

¹Western Carolina University, Cullowhee, NC, USA. ²Independent Scholar, Manchester, United Kingdom. ³University of South Australia, Adelaide, Australia. ⁴University of Liverpool, Neston, United Kingdom

Introduction: In extended suicides (murder-suicides), a person kills another person as well as themselves. Here we describe the demography and anthrozoological implications of suicides in which pets are also killed.

Methodology: News articles published between January 2010 and May 2020 were located using the terms “pets and suicide,” “suicide with dog” and “suicide with cat” through Google and Yahoo News. Articles were collected by three individuals, crosschecked, and duplicates removed. For each article, we gathered the perpetrator’s gender and age, number of victims/gender/age, number of child and adult victims, species and number of pet victims, and causes of death.

Main Results: We located 61 news reports describing incidents of actual or attempted cases of extended suicide involving pets. Most cases were from the US (48) followed by the UK (6), Australia (3), India (2), Canada and Thailand (1 each). Fifty-eight percent of the perpetrators were men. In 90% of cases, the person committing suicide also killed one or more family members as well as a pet. Collateral human deaths included 34 spouses or partners, 24 children, 2 siblings, and 5 mothers or grandmothers. One hundred thirteen animals were involved - 101 dogs, 9 cats, 2 rabbits, and 1 "pet". Single animals were involved in 77% of cases. Gunshots were the most common cause of death (67%) followed by carbon monoxide poisoning (8%).

Conclusion: Extended suicides with pets usually involve the deaths of human family members. These findings provide tragic evidence of the degree that people consider pets as members of their family and may think of a pet as an extension of the self. Unlike murder-suicides, suicides involving a single person rarely make the news media. The number of pets killed in the course of single human suicides is unknown but could be large.

S6.3 News Reports of Teenage Suicides After a Pet's Death

Jody A Olsson¹, Em Bould², Janette O Young¹

¹University of South Australia, Adelaide, South Australia, Australia. ²Monash University, Melbourne, Victoria, Australia

Introduction: Globally, close to 800 000 people die due to suicide each year across all age groups. However suicide is the second leading cause of death in young people/teenagers aged 15 to 19 years. This presentation focuses on the small number of publicly available media reports that link teenage suicide to the death of an animal that the teen is reported to have viewed as a pet.

Methodology: Online news articles published between September 2017 and May 2020 were sourced through internet searches using Google and Yahoo. The terms and phrases "Teenage/Child suicide", "suicide after the death of pet" and "suicide after the death of dog". For each article, date, gender, age, pet species, means of death, country and a brief summary of the news story was recorded.

Main Results: Only three news reports describing incidents of teenage suicide after the loss of pets were found. Two in India and one in the UK. The causes of death were hanging.

Conclusion: The incidence of teenage suicides after a pet's death is unknown. Ethical globalised media embargoes on reporting suicide mean that this can only be a suggestive snapshot, however these findings provide evidence that the death of a pet may lead some young people to end their lives. These suggested negative implications of the pet effect need to be investigated more in order to develop preventive and protective understandings, with implications for both humans and the animals young people may view as pets.

S6.4 Findings of Pets in Intentional Deaths/Suicide in Publicly Accessible Coroners' Reports in Australia

Katerina IP Mattock¹, Em Bould², Jody A Olsson¹

¹University of South Australia, Adelaide, SA, Australia. ²Monash University, Melbourne, Victoria, Australia

Introduction: The intersections of human and animal lives with regard to human suicide are relatively unexplored. Given that the investigation of human suicide poses major ethical concerns, seeking out publicly accessible information in the first instance is important. Public media reports of suicide are limited in Australia (as in many countries) by voluntary adherence to Australian Press Council recommendations that suicides should only be reported if of substantial public significance (e.g. for suicide awareness purposes). While macro data on suicide in Australia is available, the presence or role of animals in these human scenarios is not reported. However, some detailed coroner's investigations of potential and deemed suicide scenarios are available via state coroner websites.

Methodology: Publicly available reports between 2016 – 2020 from all Australian states and territories were manually searched for mention of pets in scenarios determined self-inflicted deaths. Terms searched included 'dog', 'cat', 'pet', and 'animal'. Gender, age, family relations, cause of death, context and any significant coroner's notes were noted regarding these cases.

Principal conclusions: Less than 30 publicly available reports were identified nationally. Jurisdictions vary with regard to a range of factors including which cases of potential suicide are reviewed by the coroner, language used in determinations, which are made public and the amount of information accessible even when posted publicly. Of the accessible reports mentioning pets:

- broad patterns of suicide were reflected (gender, types of deaths);
- only dogs were noted,
- no reports of harm to animals in individual suicides,
- all mentions in familicide involved animal harm.

Implications for the field:

Reports were diverse and indicate disparate areas for further research however future foci could include:

- the intersections of suicidality, males and pet dogs,
 - the extension of multi-species family dynamics to including pets in familicide,
 - euthanasia laws,
 - and veterinarian suicides.
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S7. Research on Animals in Educational Contexts

14:15 - 15:45 Thursday, 24th June, 2021

Symposium Chair

Joshua Russell

Canisius College, Buffalo, NY, USA

Discussant

Connie Russell

Lakehead University, Thunder Bay, Ontario, Canada

Description

This proposed symposium highlights ever-shifting perspectives on human-animal relationships that arise within various educational contexts, both formal and informal. Non-human animals feature as key subjects in various curricula and educational strategies, including those outside of the formal K-12 system. For example, there are multiple ways in which learners engage with animals as symbols, objects, or as agential subjects within the fields of environmental education, humane education, conservation education, and education for sustainable development. This proposed symposium presents research on the categorization, employment, and inclusion of animals in diverse educational settings, emphasizing the interconnectedness of teachers, family members, children, students, and the animals themselves in shaping knowledges and practices that establish and maintain relationships between humans and other animals. This symposium most directly relates to theme #21 related to human-animal relationships in educational settings. It ties into the conference theme of changing interactions and relationships between human animals, as pedagogy is both shaped by and shapes ever-evolving socioecological processes. Each of these studies provides a unique perspective and geographical location: a posthumanist and multispecies ethnography of child-wildlife relationships in a Canadian forest school; child-animal relationships that emerge from hunting and fishing practices; and teachers' influences on students' animal knowledge and perceptions within classroom settings.

S7.1 Multispecies Explorations of Children and Urban Wildlife at a Canadian Forest School

Elizabeth Boileau

Lakehead University, Thunder Bay, Ontario, Canada

Introduction: Forest school is an increasingly popular type of outdoor program that offers various outdoor experiential learning opportunities for children. This study examined child-nature relations, specifically, empathy and embodied experiences of the natural environment through a posthumanist and common worlds approach. This paper presents findings that relate to animals, such as urban wildlife and dogs, that feature prominently in the study.

Methodology: A multispecies ethnographic study was conducted in Alberta, Canada with a group of preschoolers attending a weekly forest school program in the fall of 2020. The first method of data collection was non-participant and participant observation of children and animals at the park. The second method was video footage captured by GoPro strapped to the children. Data was analyzed through a coding process and themes were represented through vignettes that represent multispecies experiences (Hodgins, 2019).

Main results/findings: Although cold temperatures and snow somewhat limited the presence of active animals with whom the children can engage, squirrels and many species of birds share the park with the forest school group, along with off-leash dogs on the paths. Teacher-led activities and child-led play and games often revolved around animal themes. Dogs were viewed by the educator as an important component of the program. Social relationships and personal interests of the teacher and children mediated encounters with animals and explorations of stewardship, care and empathy. Methodologically, conducting a multispecies ethnography involving children required constant conscious effort to decenter the human participants and a curiosity about the species found at the park.

Implications for the field: As multispecies and posthuman research with children and animals expands, this study provides insight into methods and ethical considerations, as well as vignette writing that not only takes into account children's learning but also the agency and lives of animals sharing the outdoor space.

S7.2 Regarding the Hunted: A Phenomenological Investigation into Children's Experiences of Hunting and Fishing

Joshua J Russell

Canisius College, Buffalo, NY, USA

Introduction: Given the large numbers of individuals and groups associated with hunting and fishing in North America, and their economic, ecological, and conservation-related impacts, this project aims at developing a deeper understanding of the experiences of children who engage in such activities.

Methodology: This qualitative study explores the pedagogy of hunting and fishing. Interviews and analysis were conducted using an interpretative phenomenology framework (Smith et al 2009). Participants included 15 children, ages 7-14, all of whom hunt and/or fish. Researchers independently coded interviews and compared emergent code lists, developing key thematic concepts and a research narrative.

Results: Our main findings emphasize three interrelated themes:

- Children articulate use of interspecies empathy when hunting/fishing
- Children employ knowledge related to ecology and animal behavior
- Children's moral sense of these activities requires them to reconcile sometimes challenging physical and emotional reactions

Across these three themes, researchers trace children's felt sense of the challenges of learning not only the skills and equipment required to hunt and fish but more significantly the various kinds of knowledges required to find animals, imagine how animals live in and experience their environments, and how to mitigate their own emotional and physical responses to catching and killing animals as part of their developing sense of morality. Various intergenerational relationships constitute key pedagogical contexts for these findings.

Implications: This study provides new insights for researchers and practitioners who wish to understand more clearly how children think about wildlife when engaging in hunting and fishing practices. The implications for conservation measures, outdoor education, and human-animal

interactions include recognition of the moral, psychological, and sociocultural dimensions of practices that are key parts of the North American model of wildlife conservation.

References:

Smith, J., Flowers, P., and Larkin, M. (2009). *Interpretative phenomenological analysis: Theory, method, and research*. London: Sage Publications.

S7.3 “He’s Noisy, Smelly and Dirty:” Impact of Teacher Talk on Children’s Relations with Animals

Patty E Born

Hamline University, St Paul, MN, USA

Classroom and non-formal educators are increasingly incorporating animals into the curriculum; through the inclusion of live animals in the classroom setting, or excursions to places where animals live. These opportunities offer potential pedagogical benefits for children. However, teacher discourse impacts children’s experiences with and feelings toward animals. The role and impact of teachers during child-animal interactions warrants further research in order for educators to be more intentional in their pedagogical aims.

Through a framework influenced by multispecies ethnography (Hamilton & Taylor 2017), the author conducted participant observations of two preschool classes, including teachers and farm animals, during the winter of 2018-2019 in a suburb of the Twin Cities metropolitan area, Minnesota, USA. Audio recordings captured teacher-child-animal interactions. A process of open coding (Saldaña, 2016) was employed to identify themes that emerged. Next, specific aspects (e.g., narration, “teachable moments”) that emerged within the broader context were noted. Finally, mind maps were created to group and order similar themes.

The following themes emerged when analyzing the type and content of teacher talk:

- Provision of academic content;
- Descriptions of animal motivations, behaviors, and feelings;
- Setting expectations about animal-child interactions

The teachers in this setting felt it was important to teach children scientific information about animals whenever possible. Teachers also engaged in interpretation of animal behavior, often centering their interpretations on individual children or events involving specific interactions. In nearly every instance, the statements made by teachers reinforced anthropocentric framing around animal-child relations. Factors including teachers’ tone of voice, content, and objectives impacted children’s individual and shared experiences with animals. This study offers educators, specifically those who work with young children, a provocation to reflect on their own behaviors and approaches to supporting animal-child interactions. Specifically, it interrogates teacher practices and examines the potential impact on children’s feelings toward, and experiences with animals.

S8. More than a Pet: “Pet Parenting” as an Emerging Family Practice

16:00 - 17:30 Thursday, 24th June, 2021

Symposium Chair

Shelly Volsche

Boise State University, Boise, ID, USA

Discussant

Lori Kogan

Colorado State University, Fort Collins, CO, USA

Description

While pet parenting often brings to mind gimmicky advertising campaigns, in practice, it is a form of alloparenting that mirrors human care of biological offspring. Pet parenting can be defined as temporal, financial, and emotional investment in the needs of, and relationship with, a companion animal in the home. Research on the inclusion of companion animals as members of one’s family unit dates to the mid-20th century. However, it is mostly in the past decade that pet parenting has been investigated as a form of kinship in its own right, rather than a surrogate for human relationships.

The purpose of this symposium is to consider evidence that supports pet parenting as an emerging form of kinship, with its own biological, psychological, and cultural processes and variations. Pet parents negotiate spaces, routines, and activities with companion animals in ways quite similar to parents of children. Terra Green considers how men and women’s interactions with dogs in public spaces reflect the literature on gender differences in human parenting. Elizabeth Johnson’s presentation expands pet parenting beyond dogs and discusses oxytocin responses and attachment in human-cat relationships. Nikki Bennett adds to this conversation by discussing the motivations for and ethical considerations related to pet genetic testing. Finally, Rijita Mukherjee brings a cross-cultural perspective, reviewing human-animal attachment and caretaking data from parallel surveys completed in India and the United States. Tying it together, Lori Kogan reflects on this and other research that suggests an increasing number of individuals are actively choosing companion animals over children, while exploring the social and demographic changes that may be driving these choices. The symposium will end with future considerations for research and policy.”

S8.1 Not Just a Walk in the Park: Dog Park Ethograms of Human-Dog Dyads

Terra L Green, Shelly L Volsche

Boise State University, Boise, ID, USA

Introduction: Previous research demonstrates differences in owner sex and gender influence interactions with one’s dog. Dog size also plays a key role. Using human parenting and human-dog interactions literature, we suggest that human-dog interactions may take the form of parent-child interactions, and that this can be observed and demonstrated using dyadic ethograms.

Methodology: We recorded interactions between guardians and their dogs at public, off leash dog parks in Fall 2020. We then selected 30 second focal follows and coded with continuous sampling. Independent variables included the sex of the guardian, general age cohort of the guardian (e.g., young adult, elderly), and the size of the dog. Coded behaviors included different

types of play (e.g., chase, fetch, rough and tumble), parallel walking, and training activities. We also coded for times in which either the human or the dog engaged with others outside the focal dyad.

Main Findings: Our findings did not demonstrate specific differences between men's and women's interactions with their dogs. We suspect this may be a by-product of the particular park where recordings were made. However, there is evidence that human-dog interactions at the park mirror parent-child interactions. Dogs spent much of their time focused on, or playing with, other dogs, while humans either watched over their dogs or interacted with other dog "parents."

Principal Conclusions and Implications for the Field: The use of ethogram methods in observing human-animal dyads is still relatively new. However, this study demonstrates the value of this methodological approach. We provide further evidence to suggest that humans shape their relationships with dogs in ways that parallel parent-child relationships.

S8.2 For the Love of Cats: Women's Oxytocin Response to and Social Connections with Their Cats

Elizabeth A Johnson¹, Arianna J Portillo², Nikki E Bennett¹, Peter Gray¹

¹Department of Anthropology, University of Nevada, Las Vegas, Las Vegas, NV, USA. ²University of Nevada, Las Vegas, Las Vegas, NV, USA

Domestic cats, *Felis catus*, are not just the fuzzy overlords of the internet; they are also one of the most popular companion animals in the US. Some 42.7 million cats live in American households (American Pet Products Association, 2020). Despite their popularity, we are still learning about the companionship role cats play in our lives. This study explored human-cat attachment and women's change in salivary oxytocin (OT) levels during interactions with their cat after work compared with a control condition. Participants (N=30) were women 19–41 years of age who completed a pre-trial survey including the Lexington Attachment to Pets Scale (LAPS), questions related to work, and questions about their perceived relationship with their cat. Participants then completed two separate trials on different days at similar times of day: interacting with a familiar cat for 15 minutes and reading a book chapter for 15 minutes. Each human-cat interaction was recorded and coded for behavior/relationship dynamics, and we collected pre- and post-trial saliva samples to measure OT in both conditions. Prior research demonstrates that oxytocin plays a role in bonding, socialization, and potentially stress relief. Existing research has investigated women's hormonal responses to interactions with children and dogs; this is the first study to test for women's oxytocin responses stemming from interactions with a familiar cat. This research contributes to the growing data on human-animal interactions and adds a new social angle to a large body of interdisciplinary research on oxytocin and social behavior. Our results support the growing literature that companion animals are increasingly viewed as members of one's family and provide social support after experiencing a stressful event.

S8.3 39andDog or 19andCat: Direct-to-Consumer Genetic Testing for Companion Animals and the Need for Social Science Research

Nikki E Bennett, Peter Gray
University of Nevada, Las Vegas, Las Vegas, NV, USA

Introduction: Numerous options exist for pet owners to pursue pet genetic testing and without the need for a veterinarian. Direct-to-consumer (DTC) genetic tests fuel debates about the market's social and ethical implications. Research on the impacts of pet DNA tests is limited, but trends in the human genetic testing may be informative. The objective of our review is to present existing knowledge of the human DTC genetic industry and its relevance to the cultural phenomenon of pet owners purchasing DTC animal DNA tests.

Methodology: Literature published between 2000–2020 was reviewed within the scope of consumer motivations, social and ethical considerations, and consumer protections. Publication types ranged from review articles to qualitative and survey-based research.

Main Findings: Consumers pursued genetic tests for non-health and health reasons. Concerns about the human and pet DTC genomic industries were related to transparency and validation of genetic test methods; consumer interpretation of test results; and a lack of consumer protections. Furthermore, apprehensions exist about discrimination against consumers and sharing of results with outside agencies.

Principal Conclusions and Implications for Field: Our findings indicate current research on DTC trends in the human DNA market is applicable to the pet genetic testing industry. Furthermore, a need exists for practical methods to explore the companion animal genetic industry and its impacts to the human-animal bond. For example, goals of animal research include developing genetic tests for behavior analysis. However, others have cautioned against “behavior genetic panels” as they do not account for breed variation, pleiotropic genes, and environmental influences on phenotypes. At present, we are working to develop methods to collect data from pet owners as they are targeted consumers and are believed to provide the most insight into how the human-pet relationship is being changed by pet DNA tests.

S8.4 The Difference is in the Details: A Comparative Study of Attachment and Cross-Species Parenting in the United States and India

Rijita Mukherjee¹, Shelly Volsche², Madhavi Rangaswamy¹
¹Christ University, Bangalore, Karnataka, India. ²Boise State University, Boise, ID, USA

Introduction: Pet parenting can be defined as temporal, emotional, and financial investment in a companion animal. It appears that certain demographic markers (e.g., decreased fertility, high rates of urbanization, women's educational attainment) serve as precursors to this emergent practice. Our study seeks to test this hypothesis by comparing the U.S., a country in which pet parenting is previously demonstrated, and India, a country in which pet parenting is not yet documented, though observations suggest it is already on the rise.

Methodology: We launched parallel, online, anonymous surveys in India and the U.S. during the summer and early fall of 2020. Questions included basic demographics, the Lexington Attachment to Pets Scale (LAPS), and items to probe respondents' perceptions of their relationships with

companion animals, including a series of Likert scale statements regarding the frequency with which they performed certain tasks (e.g., “I am the person who feeds my pet”) and ascribe autonomy to their companions (e.g., “I let my pet request play/walks from me”).

Main Findings: Our results support the hypothesis that certain demographic characteristics of a population may predispose a nation to embrace pet parenting. More importantly, we also demonstrate that the practice of pet parenting, while broadly similar, is keenly sensitive to cultural differences, like any other form of kinship.

Principal Conclusions and Implications for the Field: Pet parenting is an emergent form of family and is not a unique trait of the cultural west; rather, it appears to be occurring on a global scale when certain demographic precursors are met. As such, human-animal interaction and family researchers need to begin considering the presence or absence of children in a home, as well as the roles negotiated by companion animal guardians when working in this area.

Livestream Oral Presentations

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L1. Pet Adoption and Retention

11:45 - 13:15 Tuesday, 22nd June, 2021

Chair: Carri Westgarth

L1.1 "And Then What?" A Phenomenological Study of People Who Adopted Abused and Neglected Dogs

John Reilly

Canisius College, Buffalo, NY, USA

Introduction: There are significant gaps in the research dealing with the adoption of abused dogs and the experience of living with them. Prior studies have examined the behavioral issues exhibited by these dogs but did not address how the dogs' caregivers manage or cope with them, or the effect that these dogs have on their families' lives. This study looks at the owners' life and experiences once the adoption takes place and the dogs are incorporated into new families.

Methodology: The adopters of ten dogs with documented backgrounds of abuse or severe neglect took part in in-depth interviews regarding their lived experiences with these animals. These recorded interviews were subjected to inductive analysis, resulting in the identification of significant or meaningful passages, which were coded and categorized until thematic elements emerged from the adopters' personal accounts.

Main Results: Three inter-related themes emerged from the data analysis; dealing with the adopters emotional bonding with their pets, their expectations of the adoption and their level of knowledge of their dogs' prior abuse. The most impactful of these themes was the level of knowledge that the adopters had of their dogs' prior history. That factor had highly significant effect on the caregivers' perception and relationship with their dogs as well as their own quality of life regarding stress, self-image and inter-personal relationships.

Principal Conclusions and Implications for Field: This study can inform shelters and rescue organizations about any common experiences that adopters encounter in living with abused dogs. The data presented here may aid in providing guidance to prospective adopters and may provide insight into post-adoption support for these families.

L1.2 Does Fido have a Foot in the Door? Social Housing Companion Animal Policies and Policy Decision-Making

Erin McCabe¹, Cary A Brown¹, Maxi Miciak¹, Douglas P Gross¹, Eloise Carr², Jean Wallace², Donna M Wilson¹, Maria Tan¹

¹University of Alberta, Edmonton, Alberta, Canada. ²University of Calgary, Calgary, Alberta, Canada

Introduction: Living with a companion animal (CA) can positively impact quality-of-life and well-being for people accessing social housing (e.g., individuals with low-income, with disabilities, at risk of homelessness, and seniors). Organizational policies can present a barrier to allowing tenants to live with CAs. There is a significant shortfall in the literature specific to CA policies in social housing. This presentation describes CA policies in Edmonton, Canada, and examines

decision-making processes and the sources of information used to inform decisions within social housing organizations.

Methodology: We took an iterative, multi-stage approach including a search for peer-reviewed literature, review of publicly available documents on social housing organizations' websites, and structured interviews with individuals in social housing organizations.

Results: Half of the social housing organizations do not allow cats or dogs. The organizations prioritize four factors when making decisions about CA policies: 1) the organization's mission and vision; 2) the population served; 3) financial or resource constraints; and 4) the experiences and beliefs of individuals within the organization. Priority research questions were identified and cross-checked with stakeholders to address the need for evidence-informed decision-making in the complex area of social housing and quality of life.

Conclusions and implications for the field: Personal experiences with CAs in rental accommodation, individual beliefs of organization personnel, and organizational values appear to drive decisions about CA policies in social housing. Scientific research evidence (if considered), was used conceptually to give decision makers a general idea about the benefits of CA ownership to their tenants. There have been no previous systematic evaluations of CA policies and the impact of specific features of a policy: on tenants' well-being, and on social housing organizations in terms of financial resources required to implement and maintain CA policies. There is an acute need for targeted research in this area.

L1.3 Measuring the Impacts of Increasing Access to Pet Support Programming on One Health in Two Underserved Communities

Tess Hupe¹, Sloane M. Hawes¹, Jordan Winczewski¹, Kaitlyn C. Elting¹, Maria Saucedo², Amanda Arrington², Kevin N. Morris¹

¹Institute for Human-Animal Connection, University of Denver, Denver, CO, USA. ²The Humane Society of the United States, Gaithersburg, MD, USA

Introduction: Although there has been recent growth in animal welfare programming focused on keeping people and their pets together, there is a lack of current research on the efficacy of these programs. Understanding the social, economic, and structural barriers to accessing pet care services is important for improving the health and welfare for companion animals in communities and preserving the human-animal bond.

Methodology: The Humane Society of the United States' Pets for Life (PFL) program was implemented in one rural and one urban community, both of which have historically experienced a lack of geographical access to pet care services. The impacts of the PFL program were measured over three years (2018-2020) using the One Health Community Assessment (OHCA), which measures changes in an individual's perceptions of their access to human, animal, and environmental health resources. Propensity score matching was used to control for how demographic factors influence access to care. A Generalized Estimating Equations (GEE) method is being used to compare the OHCA measures over the three-year study period between individuals who participated in the PFL program and individuals in the same community who did not.

Results: Over the three-year study period, 691 pet owners participated in the PFL program, and 557 households participated in the survey at least once out of the three years. After propensity

score matching, there was a sample size of 196 community members. Initial results of the GEE analysis suggest participation in the PFL program increases access to pet care services in historically underserved communities.

Conclusions and Implications: Community-based animal welfare programming may be an effective approach for removing barriers to accessing pet care services. Future research directions include exploring if positive outcomes of the PFL program can be replicated in other communities and understanding if increasing access to care impacts One Health outcomes.

L1.4 Saving Seniors: A National Study of Strategies to Increase the Adoption and Retention of Senior Dogs

Lisa Lunghofer

Making Good Work, LLC, Gaithersburg, MD, USA

Despite recent increases in companion animal adoptions, senior dogs remain at risk. The adoption rate for senior dogs is lower than that of all other ages combined, and the live release rate is just over 50% (ASPCA, 2015). Made possible by a Maddie's Fund grant, this is the first study to examine community-based initiatives nationwide to increase senior dog adoption and retention. This qualitative study involved interviews and focus groups with 155 staff, volunteers, and senior dog adopters representing 95 animal welfare organizations across the U.S. that received grants in 2018 and 2019 from The Grey Muzzle Organization, the only national organization focused specifically on senior dogs. Staff were asked to discuss their grant-supported senior dog initiatives, including challenges and successes. Senior dog fosters discussed their volunteer experience, and adopters described barriers to and motivators for adoption. Using a comparative case study approach, the study provides an in-depth examination of grantees' senior dog initiatives and identifies promising approaches to increase adoption and promote retention.

Key findings include the need to offer more funding and support a mix of primary, secondary, and tertiary prevention strategies that both keep senior dogs out of shelters and better meet the needs of those who come into care; develop new cost-management strategies; address the role of people in the plight of senior dogs, including working with human service providers and supporting people to provide their dogs adequate care throughout the lifespan; provide community outreach to address minor health issues before they become costly and unmanageable; and create innovative marketing campaigns to promote the benefits of senior dog adoption. Ultimately, increasing senior dog adoption and retention require better collaboration among veterinarians, volunteers, public shelters, community-based organizations, and the public. Implications for new community-based initiatives focused on senior dogs will be discussed.

L2. Multispecies Ethnography

13:45 - 15:15 Tuesday, 22nd June, 2021

Chair: Joshua Russell

L2.1 Bees, Forest and People - Multispecies Ethnography in Heritage Studies of Tree-Beekeeping Culture in Poland

Karolina Echaust

Institute of Ethnology and Cultural Anthropology, Adam Mickiewicz University in Poznań, Poznań, Poland

Since 2018, I have been conducting fieldwork among the tree-beekeepers community in Poland. The theory of cultural heritage (Lubaś 2017) is, in my opinion, insufficient to research and describe multi-threaded tree-beekeeping culture. That is why in my research I use the method of multispecies ethnography (Tsing 2014, 2015), because that tree-beekeeping culture is the kind of heritage that should be looked at in various dimensions and manifestations. I subject tree-beekeeping culture in the socio-cultural and natural dimension to multispecies ethnographic research. In the discourse of environmental anthropology, I include non-human persons (bees, forest), which in my opinion co-constitute tree-beekeeping culture. As part of the research on intangible cultural heritage, I follow the practices, value systems, and motivations of various social actors involved in the process of establishing heritage (E. Klekot 2016). The presentation is an attempt to propose a new approach to research on cultural heritage entangled in multispecies relationships. In my opinion, tree-beekeeping culture cannot be understood without including in the research area all entities (human and non-human) that define this heritage.

L2.2 Multi-Species Ethnography During a Pandemic: Problems and Possibilities

Nickie Charles¹, Rebekah Fox¹, Mara Miele², Harriet Smith²

¹University of Warwick, Coventry, United Kingdom. ²Cardiff University, Cardiff, Wales, United Kingdom

Introduction: This multi-species ethnography was designed to explore five different dog-training cultures in the UK (police dogs, assistance dogs, therapy dogs, gun dogs and companion dogs) and how they shape dog-human relationships.

Methodology: The main research methods were participant observation, interviewing and visual recording of training events. Due to the Covid-19 lockdowns we adopted several remote methods to continue the research. These included observing online training, carrying out telephone and online interviews, and recording with body cameras worn by dogs and their handlers during training sessions.

Findings: Embodied communication is fundamental to human-animal relationships and during fieldwork we observed how dogs and humans engaged with each other through bodily interaction and learnt through imitation. In remote training classes for companion dogs communication becomes more reliant on verbal cues rather than physical demonstration, making it harder for a novice handler to learn how to engage with their dog. For therapy and community dogs, while there have been challenges, the move to remote communication has led to the development of

novel ways of facilitating dog-human interaction, such as the dogs playing different games with the residents of care homes.

As researchers we lose the corporeal training atmospheres, including the sounds, smells and touch which constitute them, and instead engage in digital spaces offering a different affective register of experiences. The use of body cameras opens up possibilities for a different type of ethnography, one closer to the dog's point of view, quite literally, and less reliant on human narratives.

Conclusions and implications for the field: Reflecting on the changes to the methodology we find that the move to remote film recording generates different and novel insights into the construction of dog-human relationships.

L2.3 Irreplaceable Tools: An Ethnographic Examination of the Development of the Dog-Human Relationship in Volunteer K-9 Search and Rescue Teams

Kara Griffin

Southern Methodist University, Dallas, TX, USA

Introduction: Recent large-scale natural disasters have led to increased consideration of non-humans, such as companion animals, in disaster response plans. Non-human animals are also involved in the provision of these public safety services, in the form of canine search and rescue teams. This paper explores canine handler descriptions of what it means to become a dog/handler team, the nature of this relationship, and the implications this has for human and canine team members working in potentially hazardous conditions.

Methodology: This study is based on two years of multi-species ethnographic research with disaster and wilderness K-9 Search and Rescue teams, primarily comprising volunteer members. Methods included 43 in-depth interviews with search and rescue personnel (including canine handlers, trainers, support personnel, administrators and government officials), in addition to numerous informal conversations and hundreds of hours of participant observation.

Main Results: Canine handlers most frequently described their relationship with the working dog as a “partnership” or “team”, despite the fact that working dogs are often officially classified as “equipment”. Main themes brought up by handlers emphasized the agency of the dog in the development of the team dynamics, the importance of understanding and respecting the often-superior capabilities of the dog, and the performance of various types of affective labor by the dogs beyond what was strictly called for in the performance of a search. This affective nature of the relationship (as opposed to official narratives of the dog as equipment to be used for the preservation of human life) was particularly noticeable in instances where the dog was exposed to danger or suffered serious injury, resulting in unexpected handler responses.

Principal Conclusions/Implications for the Field: This research suggests the importance of taking seriously the relationships between human and non-human partners in the development of policy and procedure in public safety services.

L2.4 Born to Buck, Not to Be Wild: Changed Emic Perceptions on Bucking Horses in American Rodeo

Evelien Deelen

Washington State University, Pullman, WA, USA

This paper argues that the introduction of systematic breeding practices in the American rodeo industry correlates with a change in emic perceptions and classifications of a group of equines called 'bucking horses'. Through an ethnographic study of bronc (or bucking horse) riding, which relied on semi-structured interviews, systematic observation, and a self-administered online survey to enable research in the current pandemic, 81 self-identified rodeo associates (participants, organizers, and fans) from the Western United States were questioned about their perceived relationship with bucking horses.

My data demonstrates that over the last few decades, two important perceptual shifts have occurred in the rodeo culture, which correlate with the establishment of organized breeding programs. In the past, rodeo associates perceived bucking horses as the outlaws of the equine domain, because not even the harshest methods could break the bucking habit of these creatures. Unlike their predecessors, modern-day broncs are purposely bred to contain what breeders refer to as a 'bucking trait'; a natural predisposition to buck whenever an attempt is made to ride them. Rodeo associates perceive these animals as athletes, and as respected partners the cowboy competes with, rather than against. In addition, although rodeo animals are still portrayed to the public as wild creatures, most rodeo associates no longer consider any of their livestock as wild animals. This shift in perception and categorization has repositioned the culturally constructed narrative through which rodeo associates validate the use of animals in rodeo. Additionally, it also greatly impacts the lives and fates of countless horses, bulls, steers, and calves, now they have become reproducible commodities.

L3. Animal-Assisted Interventions: Methodology and Measurement

15:45 - 17:15 Tuesday, 22nd June, 2021

Chair: Cheryl Karuse-Parello

L3.1 Considering the Bond: Efficacy and Attachment Benefits of AAI's Between Children and Their Family Dog

Monique A. R. Udell, Shelby H. Wanser, Megan MacDonald
Oregon State University, Corvallis, OR, USA

Introduction: Animal Assisted Interventions (AAIs) have the potential to result in meaningful benefits in terms of human health and wellbeing. While feelings of attachment towards an animal partner have been found to be predictive of welfare benefits to human participants, less is known about how a dog's attachment security to a handler, caretaker or participant influences behavior during AAIs, and consequently, intervention outcomes. It is also relatively unknown how participation in AAIs may impact the dog-human bond.

Methodology: We investigated the relationship between AAI participation and attachment in a dog training intervention for children with developmental disabilities and their family dog. The attachment security of twenty-four child-dog dyads was evaluated before and after the intervention using a Secure Base Test. In addition, the attachment style of the dog toward a primary adult caregiver was evaluated.

Main Results: Prior to the AAI, 9/24 dogs exhibited a secure attachment to their child partner. Significantly more dogs, 18/24, exhibited a secure attachment to the adult caretaker. All nine dogs with a secure attachment to the child also had a secure attachment to the adult (Binomial Test, $p = 0.004$). After AAI participation, 18 dogs exhibited a secure attachment towards their child, a statistically significant increase (Fisher's Exact Test, $p = 0.02$).

Principal Conclusions and Implications for Field: AAIs have the potential to improve the bond between children and dogs living in the same household. Interventions that emphasize animal care and wellbeing may have a greater positive impact on attachment behavior. Pre-existing relationships between a dog and other caretakers may predict aspects of social behavior during AAIs.

L3.2 To Be and to Seem Evidence-Based: How Research Designs Help (Or Not) to Strengthen Animal-Assisted Interventions

Javier López-Cepero
University of Seville, Sevilla, Spain

Introduction: Animal-assisted interventions (AAIs) comprehend programs in which non-human animals (such as dogs, horses and cats) play a role. Although those interventions are widely accepted among practitioners, recent meta-analyses show mixed results about their efficacy, and some voices (including Spanish Ministry of Public Health) claimed that AAIs should be considered pseudotherapies. Present work carries out a critical analysis of the state of the art in AAIs research, trying to connect how current research may foster those events.

Methodology: We conducted a narrative review of recent meta-analyses, following López-Cepero's (2020) framework. The analysis focused in a) operative definitions of AAls, and their relationship to human-animal interaction (HAI); b) references to possible mechanisms of change; and c) design and methods used in meta-analyzed studies.

Main Findings: Recent meta-analyses included high-quality studies that complied with current research standards (such as PRISMA, MINORS, or Cochrane Risk of Bias Instrument). However, the review highlighted that: a) many meta-analyses collected and analyzed together programs in which the presence of animals seemed to be the only common characteristic, thus confusing HAI and AAls; b) description of animals characteristics and activities they took part in (e.g. brushing) was more frequent than description of the program itself, and of the mechanisms that could explain outcomes; and c) most studies included in meta-analyses used passive groups of control (e.g. waiting lists), thus preventing to conclude how much the animal improves the program.

Principal Conclusions and Implications for Field: Defining AAls as a qualitatively different type of intervention, paying more attention to animals than to their impact on mechanisms of change, and choosing methods that try to demonstrate that AAls can work as a whole, depict AAls as alternative interventions and foster confusions in data interpretation. Recognizing and solving those challenges would help to strengthen up the field.

L3.3 Measuring Synchrony During Animal-Assisted Interventions

Steffie Van der Steen

University of Groningen, Groningen, Netherlands

The field of animal-assisted interventions continues to be in need of strong empirical studies to determine the effect of these interventions. Although numerous studies have focused on outcome measures of clients and some have focused on the animal's behavior, few studies focused on the interaction between animal and client. Those studies that have examined this interaction mostly used observations, which are very insightful, but time-consuming. Unfortunately, this often limits the amount of participants that can be studied. In this talk, I will discuss an innovative quantitative way to 1) measure and 2) analyze behavioral synchrony between the animal and client during animal-assisted interventions.

Synchrony can be considered as a rhythmic pattern of behavior that is mutually regulated, reciprocal, and harmonious. Synchrony is a pattern created by two interaction partners, and can be expressed as a temporal match between their behaviors. Importantly, synchrony in human interactions facilitates the development of social emotional skills. It has therefore been hypothesized that animal-assisted interventions may contribute to client's ability to synchronize by offering a training context, in which they learn to synchronize with the animal.

Using data from the three-axis accelerometer and gyroscope in smartwatches (attached to the animal and client) enables us to construct time series of movement changes. Time series of changes in movement on- and off-set, rate and direction are especially suitable for the nonlinear analysis technique Cross Recurrence Quantification Analysis (CRQA). CRQA dissects the synchrony of two interaction partners by detecting repeatedly occurring matches in their behavior. In this talk I will present how we used smartwatches and CRQA to assess child-dog synchrony during dog-assisted therapy, as well as its effect on the synchrony between the children and their parents in daily life.

L3.4 Reducing Risk While Increasing Resilience in Traumatized Populations in Animal Assisted Intervention Settings

Amy R Johnson

Oakland University, Rochester, MI, USA

The research has grown exponentially over the past decade demonstrating the efficacy of animal assisted interventions with a variety of populations; particularly youth who have experienced trauma. This surge of evidence comes with myriad mental health providers bringing their dogs into clinics or taking their clients to horse ranches for treatment. According to the Code of Ethics within the American Psychological Association, Boundary of Competence 2.0a-e, psychologists serve their populations in areas where they have received training, education, supervision, or professional experience and where those areas are newer, the onus is on the practitioner to seek appropriate education, training, supervision, and professional experience in order to ensure the nonmaleficence tenet. This field requires the same education, supervision, professional experience considerations. To assist in this area, over a dozen experts within the field of AAI and members of the APA Human Animal Interaction Division 17 Section 13 worked together to create a set of guidelines for mental health providers who want to include animals in their practices. With the incorporation of living beings into sessions, the risks of injury to the clients, the clinicians and the animals is greater. Having a set of competencies specific to AAls can help mitigate that risk and ensure more competent providers. The competencies follow the APA's Code of Ethics Boundary of Competence 2.0. How the clinician interacts with the animal sets the tone and sends a message to the client and being able to model empathy within the animal-clinician relationship is critical (VanFleet & Faa-Thompson, 2017). This presentation will discuss the competencies, the theoretical framework underpinning the competencies, and how to align future education, training, supervision, and practice for practitioners as well as ensure providers are using evidence-based practices and providing optimal animal welfare for their animal partners.

L4. Pets in the Pandemic

11:00 - 12:30 Wednesday, 23rd June, 2021

Chair: Sara Owczarczak-Garstecka

L4.1 Pets and a Pandemic: An Exploratory Mixed Method Analysis of How the COVID-19 Pandemic Affected Dogs, Cats, and Owners

Courtney J. Bolstad, Grayson E. Edwards, Allison Gardner, Michael R. Nadorff
Mississippi State University, Mississippi State, MS, USA

The purpose of the present study was to explore how dogs, cats, and their owners were impacted by the COVID-19 pandemic. Participants included 102 dog and/or cat owners residing primarily in the United States. Participants completed an online questionnaire between late April to late May 2020. Analyses included t-tests comparing retrospective estimates of pre-pandemic functioning and functioning during the pandemic, and qualitative thematic analysis was used to analyze participants' responses to three open-ended questions. Quantitative analyses found that pets and owners spent significantly more time together, with increases in physical contact between owners and pets, exercise with dogs, and engagement in dog-related activities. No significant changes were found regarding owners' percentage of pet care responsibility, attachment to their pets, pleasantness derived from pet-related activities, or upset feelings toward their pets when comparing pre-pandemic and during pandemic scores. Five themes arose from the thematic analysis: Social/Attachment (i.e., changes to owner-pet, pet-pet, and owner-owner relationships), Physical (i.e., increases in owners' physical contact and proximity with pets, physical benefits to pets and owners), Psychological (i.e., changes in owners' and pets' behavior and emotionality), Safety/Well-Being (i.e., health concerns regarding owners and pets), and Responsibilities/Routines (i.e., changes in owners' and pets' daily routines, changes in owners' responsibilities and productivity). These themes and their corresponding categories will be discussed further at the presentation. These findings provide valuable insight into how dogs, cats, owners, and interactions between these pets and owners were affected by the COVID-19 pandemic as well as considerations for animal welfare in the wake of the pandemic. Additionally, the study generated many hypotheses pertaining to how and why these changes occurred, providing a foundation for additional research in this area.

L4.2 A Novel Tool for Animal Welfare: Text Mining Twitter to Assess Topics of Interest and Sector Perceptions of Dogs During a Global Pandemic

Kirsten M McMillan, Katharine L Anderson, Robert M Christley
Dogs Trust, London, United Kingdom

Introduction: Text mining social media platforms allows researchers to identify patterns and extract valuable information. However, this method is rarely utilized by the charity or animal welfare sector. Here, we examine Twitter content regarding dogs and COVID-19, highlighting the topical foci of conversations, assessing sentiment expressed by specific sectors and examining their influence on public perception.

Methodology: Between 27th March – 22nd August 2020, we gathered UK and RoI tweets where content matched ≥ 1 word within two term lists: COVID-19 (n=36) and dogs (n=24). 61,088 unique tweets were assigned to a period (Lockdown, Ease Phase 1, 2 or 3). Active accounts (≥ 4

relevant tweets) were assigned to a sector (Press, State, Other or Personal) based on originating account. Text analysis was applied to a text corpus to compare word frequency, relationships between words and conduct sentiment analysis. Cross correlation functions and lagged regressions were used to assess sector influence on 'Personal' accounts.

Main Results: Topical foci varied between periods and sectors; however, consistent topics included: exercise/walking, meat trade and animal welfare (including separation anxiety). Sentiment score (measure of positivity/negativity) remained stable until Ease Phase 3, where sentiment became more negative due to an increase in language related to 'anger', 'sadness' and 'fear' ($p < 0.001$). Sentiment scores also differed between the four sectors ($p < 0.001$) and within each sector over time ($p < 0.01$). 'Personal' accounts were initially negatively correlated with 'Other' and 'State' accounts ($R = -0.4$, $p < 0.01$; $R = -0.3$, $p = 0.05$), with a 1 day delay. By Ease Phase 3, 'Personal' accounts were negatively correlated with 'Other' and 'Press' accounts ($R = -0.3$, $p = 0.03$; $R = -0.3$; $p = 0.02$), with a 5 day delay.

Principal Conclusions and Implications for the Field: These findings highlight the potential of text mining social media platforms, by the charity sector, in order to better understand public concern and perceptions towards animal welfare.

L4.3 The Effect of the COVID-19 Lockdown on Activity Patterns of Pet Dogs in the Netherlands

Kathalijne Visser, Aimée van Wilgen, Sandra Haven-Pross
Aeres University of Applied Sciences, Dronten, Flevoland, Netherlands

Introduction: The COVID-19 pandemic has dramatically influenced the lives of both humans and pets. With the closing of schools and working from home, the daily routines of dogs changed abruptly. Several studies explored the effects on the human-animal bond and behavior of the pets using an online survey. Not only humans sought comfort with the pet dogs, it was also hypothesized that dogs were walked more often and had less time for resting. Therefore this study focused on the activity pattern of the dogs.

Methodology: A cohort of 34 dog owners were recruited to participate in the study. We monitored the activity patterns of the dogs in the Netherlands using an accelerometer (FitBark) during the lockdown (April-May 2020) and at two periods after the lockdown (June and September 2020). The activity of the dogs was statistically analyzed using SPSS software.

Main Results: Analysis of the mean activity per dog per period revealed that dogs were significantly more active during the lockdown period (April-May) compared to the two control periods (June: $R_s = 0.919$, $p < 0.001$ and September: $R_s = 0.912$, $p < 0.001$). Furthermore, the activity pattern over the day revealed significant more active dogs during morning hours (one-way ANOVA, $F = 15.756$, $p < 0.001$), hours around noon ($F = 11,288$, $p = 0.001$), during the afternoon hours ($F = 34.699$, $p < 0.001$) and early evening ($F = 33.820$, $p < 0.001$); during nighttime activity patterns were not different. An additional interesting result was that dog owners became more aware of how active their dog was compared to other days or to the average of similar dogs.

Principal Conclusions and Implications for Field: These findings confirm the general feeling that dogs were more active during daytime as a result of the lockdown. Furthermore, the study showed

that providing an activity tracker for dog may be beneficial for both the dogs' and owners' health.

L4.4 Dog Walking Before and During the COVID-19 Pandemic: Experiences of UK Dog Owners

Sara C Owczarczak-Garstecka, Taryn M Graham, Debra C Archer, Carri Westgarth
University of Liverpool, Liverpool, Merseyside, United Kingdom

Introduction: Dog walking benefits owner health and dog welfare. This study investigated changes in dog walking during the first COVID-19 UK lockdown (March-April 2020) and the benefits/challenges of owning a dog during this time.

Methodology: A retrospective online survey was disseminated via social media. 584 responses were analysed using within and between group comparisons, and multivariable linear and logistic regression models. Qualitative data were coded into key themes.

Main results/findings: Respondents were predominately middle-aged females owning one dog 1-5 years old. 91.4% had not experienced COVID-19 symptoms; 12.4% considered themselves vulnerable (were told to shield or believed they should). For dogs, frequency of walks per week decreased ($P < 0.01$; median 10 before and 7 during the lockdown) but not total dog walking duration per week ($P = 0.41$; median 420 minutes both before and during), suggesting fewer but longer walks. A reduction in duration of dog walking was associated with dogs whose owners lived alone, were 50+ years of age or had a vulnerable household member. For owners, again dog walking frequency but not weekly duration changed; no change in step-counts was observed. Over a third of owners experiencing COVID-19 symptoms/self-isolating continued to walk their dogs. 62% of respondents did not have an emergency care-plan before the pandemic; just 8% developed one during. Benefits of dog ownership included: companionship; purpose/motivation; a break; and positive focus. Challenges included: changes in dog behaviour; balancing dog needs with public health guidance; accessing pet supplies/services; and conflict when sharing crowded outdoor spaces.

Principal conclusions and implications for the field: Owners that are living alone or vulnerable struggle to maintain dog walking during lockdown, which is detrimental to canine and owner wellbeing. Owners with COVID-19 symptoms, who continue dog walking, pose a risk to public health and illustrate the importance of emergency care-plans for pets.

L5. Human Perspectives on Caring for Animals with Special Health Needs

13:30 - 15:00 Wednesday, 23rd June, 2021

Chair: John-Tyler Binfet

L5.1 Burden of Care in Owners of Cats with Epilepsy

Julia SL Henning¹, Torben D Nielson¹, Julie A Nettifee², Karen R Muñana², Susan J Hazel¹

¹The University of Adelaide, Adelaide, South Australia, Australia. ²North Carolina State University, Raleigh, North Carolina, USA

Introduction: Burden of care describes the emotional, physical, financial and social toll of caring for a sick family member. While previously acknowledged in carers of human family members, recent studies suggest burden of care is also present in owners of chronically ill companion animals. Epilepsy is one such chronic condition. Long term care may result in lifestyle alteration, financial burden, emotional investment and time commitment from owners. The present study aimed to assess the level of burden in owners of cats with epilepsy and to identify factors associated with decreasing burden.

Methodology: An online survey was developed using the Zarit Burden Interview (ZBI) to measure burden of care in cat owners, the Cat Owner Relationship Scale (CORS) and demographic information. Univariate and multivariate regression analysis with ZBI score as a dependent factor was conducted using SPSS 26. $p < 0.05$ was considered statistically significant.

Main results/findings: Responses were completed by 141 participants from 22 countries. Owner burden of care, as measured by ZBI, was found to be above the clinical cut off for 41.5% of participants. Burden was significantly lower in owners who felt supported by their veterinarian (.002), were over 55 years old (<.001) and had cats with controlled seizures (.002) (defined as less than one seizure per month). Higher CORS scores were significantly correlated with lower owner burden of care (.001).

Principal conclusions and implications for the field: Owners of cats with epilepsy showed evidence of high burden of care. Adequate seizure control, support from veterinarians and close cat-owner relationships may play an important role in mitigating the impact of epilepsy owner burden. Further research into understanding the impact of burden on owners and the mitigating function of cat-owner relationships is needed.

L5.2 The Ageing Horse: Conceptualising the Human-Horse Relationship

Rebecca Smith, Elizabeth Perkins, Gina Pinchbeck, Cathy McGowan, Joanne Ireland
University of Liverpool, Liverpool, United Kingdom

Introduction: Horses in the UK are being cared for by owners into increasingly old age. Although many owners make accommodations for their horse in later life, veterinary involvement often declines. Little is known about how an owners' relationship with their horse impacts on the choices they make. This study sought to understand how owners navigate changes in their horse and decide upon appropriate management and health care provision.

Methodology: This study adopted a qualitative research methodology in which data were collected through individual interviews with owners of older horses. Participants were purposively selected and data were analysed using grounded theory methods to explore developing themes.

Main Results: The human-horse relationship was an evolving concept, through shared experiences owner understanding of obligation to the horse was reconstructed, with differing outcomes of care. Interpretation of the horse's body language, beliefs around the horse's ideal lifestyle and opportunity for choice, were integrated into the human-horse relationship. As changes in the horse occurred over time, interventions were often made to facilitate continuation of the horse's lifestyle, but over time, owner goals would shift. Management change and veterinary intervention were then sought to accommodate this new understanding. Traumatic experiences between horse and human could reconstruct the meaning of the relationship, sometimes impacting on decisions around where the horse should live, or who should provide day to day care. Facing challenges together was often understood to strengthen the human-horse relationship, however, owners did discuss conditions on this including financial capacity, as well as limits to shared suffering.

Principal conclusions and implications for the field: This understanding of the human-horse relationship shows the complexity which exists and how decisions around appropriate care are negotiated over time. This insight can be used to facilitate owner and veterinary surgeon reflection when navigating care of an older horse.

L5.3 The Dark Side of the Pet Effect: Evaluating Impacts of Chronic Disease in Dogs on Their Caregivers

Rowena MA Packer¹, Amy E Pergande¹, Zoe Belshaw²

¹Royal Veterinary College, Hertfordshire, United Kingdom. ²EviVet Research Consultancy, Nottingham, United Kingdom

Introduction: Despite widespread beliefs and growing scientific evidence regarding the benefits of pet ownership to human wellbeing, evidence is emerging describing negative effects, particularly when animals are affected by chronic and/or terminal diseases. Epilepsy is the most common chronic neurological disorder in dogs and is lifelong and incurable. Previous qualitative research from our group identified substantial negative impacts of canine epilepsy upon English caregivers. This study aimed to test the generalizability of these findings in a large international sample.

Methodology: An online cross-sectional survey was designed, informed by caregiver/parent impact tools from pediatric epilepsy. Snowball sampling was initiated across social media and disease-specific forums. Caregivers reported whether ten domains had improved(+1), stayed the same(0) or worsened(-1) due to their dog's epilepsy: sleep quality, tiredness levels, time to take care of their own health, anxiety/worry levels, confidence in ability to look after their dog, relationships with close family, other pet(s), and close friends, work hours and household finances. Mean score across the ten domains was calculated.

Main results: Valid responses were received from 590 respondents, who were primarily female (94.9%) and from the UK (58.3%) or USA (20.9%). Epilepsy had an overall negative effect on caregivers (mean:-0.37±0.25). Areas where epilepsy had the greatest negative impacts were sleep quality (worsened:68.8%), anxiety/worry levels (worsened:83.7%) and household finances

(worsened:58.4%). Only one domain described substantial improvement; caregiver confidence in their ability to look after their dog (improved:34.6%).

Principal conclusions and implications for the field: Being the caregiver of a chronically-ill dog has potentially wide-ranging negative effects, impacting core areas of physical health (e.g. sleep), mental health (e.g. anxiety) and overall wellbeing (e.g. social relationships, employment, finances). Greater awareness of negative impacts may engender better support for affected caregivers while attenuating unrealistic expectations of dog ownership.

L5.4 “Just Old Age” - A Qualitative Investigation of UK Owner Experiences and Attitudes to Ageing of Senior and Geriatric Dogs

Lisa J Wallis^{1,2}, Alan D Radford¹, Alexander J German¹, Jodie Jackson¹, Zoe Belshaw³, Enikő Kubinyi², Carri Westgarth¹

¹University of Liverpool, Liverpool, United Kingdom. ²Eötvös Loránd University, Budapest, Hungary. ³EviVet Research Consultancy, Nottingham, United Kingdom

Introduction: The provision of appropriate healthcare for old dogs is a welfare concern, because owners may not recognise or report signs of disease. This study investigated owner experiences and attitudes to ageing in dogs.

Methodology: Data were generated from in-depth semi-structured interviews with 15 owners of 21 dogs (mean age: 13) supplemented with survey questions; “describe an important aspect of caring for an older dog” (N=62) and “what does your senior dog mean to you?” (N=84). Transcripts and survey responses were inductively coded into six themes (in bold).

Main results/findings: Age-related changes observed included reduced desire for walks and play, increased sleeping, different movement, muscle loss, sensory loss, intolerance to heat and cold, loss of housetraining, increases in anxiety and/or aggression, and ‘dementia’-like confusion. However, owners mostly perceived these as “just old age”. Owners experienced caregiver burden when dogs lost mobility or required additional daily care, but still valued their dog-owner relationships as positive. Healthy ageing meant a good diet, regular exercise, and not needing to see the vet. Many dogs were no longer vaccinated, so did not regularly attend check-ups unless owners identified a problem. Other barriers to care included dogs being anxious at the vet, finances, and difficulties accessing care during the pandemic. Owners tended not to anticipate end of life care needs or euthanasia until a late stage. Trust in veterinarians was more likely when owners experienced continuity, empathy, clear communication and explanations, and a definitive diagnosis. However, owners were often reluctant for their dog to undergo invasive procedures, making some diagnoses difficult.

Principal conclusions and implications for the field: Owners recognise age-related changes but often consider them to be “just old age” requiring no treatment. Incentivising regular check-ups in both vaccinated and unvaccinated dogs could facilitate earlier diagnosis and management of age-related diseases.

L6. Equine Welfare

16:30 - 18:00 Wednesday, 23rd June, 2021

Chair: Patricia Pendry

L6.1 Parallels Between Locked-Down Humans and Locked-Up Equines: Could Human Experiences of COVID-19 Lead to Equine Welfare Improvements?

Jo Hockenhu¹, Tamzin Furtado²

¹University of Bristol, Bristol, United Kingdom. ²University of Liverpool, Liverpool, United Kingdom

Introduction: The lockdown measures introduced by the UK government in 2020 to control the spread of COVID-19 bear striking similarities to the conditions experienced by equines under common husbandry regimes. During the first lockdown (March-May 2020) parallels between locked-down humans and locked-up equines were made and circulated on social media, encouraging caregivers, perhaps for the first time, to consider the full implications of the management choices they make for their equines, particularly concerning stabling.

Methodology: Here we draw on the existing literature around equine welfare, reflecting on the ways in which traditional horsekeeping practices can be likened to life under lockdown for UK horse owners, before considering the literature around the effects of lockdown on people and how these effects have caused humans to have some of the same responses that we commonly see in horses kept under the same conditions.

Main Findings: The reported experiences of both humans and equines centred around three key limitations imposed by their confinement – a lack of social contact, restricted movement and an absence of choice or ability to express freewill. The physical and psychological ramifications of these limitations are remarkably similar in humans and equines. For example, the adoption of active or passive coping strategies, a preoccupation with food, and a ‘rebound’ in social and/or locomotory behaviour when restrictions are lifted.

Principal Conclusions and Implications for Field: The parallels drawn between locked-down humans and locked-up equines were supported by the published literature on both humans and equines. It is hoped that through the lived experience of lockdown, humans caring for equines will better recognise the consequences of their management decisions for equine welfare, and as a result choose to keep their horses in less restrictive environments that better meet their behavioural needs.

L6.2 Please Don't Feed the Horses: How the Public May Pose a Threat to Equine Wellbeing

Amelia Cameron^{1,2}, Emmeline Hannelly³, Jo Hockenhu¹

¹University of Bristol, Bristol, United Kingdom. ²University of Nottingham, Nottingham, United Kingdom. ³The British Horse Society, Kenilworth, United Kingdom

Introduction: The equine digestive system is very sensitive. Feeding inappropriate foodstuffs, or increased amounts of appropriate foodstuffs, can have serious or fatal consequences. Reports of members of the public feeding horses without their caregiver's consent, and the resulting harm incurred, are not uncommon in the UK equestrian media. Yet data on this practice are lacking. This study aimed to address this deficit, explore what other issues may arise when members of the

public interact with horses and investigate whether the COVID-19 lockdown affected interactions between equines and the public.

Methodology: Data were collected via an online survey of UK horse caregivers. A combination of open and closed questions were used to explore respondents' experiences of members of the public accessing their horses, as well as the actions they had taken to prevent this (if any). The survey was online for one month between August and September 2020.

Main Results: The survey was completed by 1,017 respondents, 78% of whom had found evidence or suspected that their horses were being fed without their permission. Over a quarter of respondents had a horse become unwell or injured as a result of this practice, with half of these requiring veterinary treatment. Issues unrelated to feeding included gates being left open, and rugs and grazing muzzles being removed. Over half of respondents reported that public interference with their horses had become worse since the COVID-19 lockdown.

Principal Conclusions and Implications for Field: Members of the public feeding horses without the caregiver's permission pose a real threat to equine wellbeing. This longstanding problem seems to have been exacerbated by changes in human exercise patterns during the COVID-19 lockdown. Traditional signage to deter feeding does not appear to be effective. Our findings will be used to develop more effective interventions to address this practice.

L6.3 Public Roads as Places of Interspecies Conflict: A Study of Horse-Human Interactions on UK Roads

Danica Pollard¹, Tamzin Furtado²

¹British Horse Society, Warwick, United Kingdom. ²University of Liverpool, Liverpool, United Kingdom

Introduction: In the last decade over 4,000 horse-related road incidents were reported to the British Horse Society, 151 fatal to horse or rider/handler. We aimed to explore equestrians' activity when using roads with their horses and what may influence their decisions to do so.

Methodology: An online questionnaire was completed by UK equestrians (October 2020) regarding their activity around exercising their horses, particularly when using public roads, via a combination of closed- and open-ended questions. Multivariable logistic regression modelling using Stata software identified factors associated with having had an injury-causing incident in the previous year and factors contributing to road use. Thematic analysis identified narrative themes centred around equestrians' decisions not to use roads.

Main Results: Most equestrians (69.4%, n=3,702/5,335) used roads 1 to 5 days/week, 8.8% (n=471) used roads almost daily and 6.4% (n=346/5,426) no longer did so. Road-related injury to horse and/or equestrian was associated with extreme anxiety when using roads or ceasing to use roads (p<0.001), experiencing a near-miss in the previous year (p<0.001), proximity of local off-road options (p<0.015) and riding and leading another ridden horse (p=0.001). Road use was associated with region (p<0.001), proximity (p=0.004) and link-up (p<0.001) of the local off-road network and person's age (p<0.001). Respondents' decisions to not use roads were based on individualised assessments of risks arising from: the road itself (e.g. slippery surface; hazards), other road users (e.g. their lack of knowledge of horses) the individual horse (e.g. flightiness) and their own emotional management (e.g. concealing nervousness). Roads were

perceived as extremely dangerous places with potentially high risk of conflict, intimidation, or dangerous driving.

Principal Conclusions and Implications for Field: Roads present a space of conflict, where the differing needs of road users collide, sometimes literally. A better understanding of group-specific needs will help to target interventions to improve safety.

L6.4 Making a Business from Your Hobby: The Complex Case of Managing Equestrian Livery Yards, and Their Effects on Equine Welfare

Tamzin Furtado, Liz Perkins, Cathy McGowan, Gina Pinchbeck
University of Liverpool, Liverpool, United Kingdom

Introduction: Around 60% of the UK's equines are kept at livery yards, run by a livery yard owner/manager (LYM). LYMs therefore play a considerable role in the management of clients' horses. Despite their important role in equine welfare, LYMs have been overlooked in previous research. This study aimed to provide insight into the role of the LYM in promoting good welfare practices.

Methodology: We conducted in-depth interviews with 29 diverse LYMs; 18 took part in a 3 month follow up, and 10 in a six month follow up. Interviews were analysed using a Grounded Theory approach.

Results: LYMs described that looking after clients' horses was "the easy bit", while managing human clients was very difficult, with each client wanting individualised care in a way that did not match with the LYM's perceptions of good practice. LYMs described needing to weigh up complex competing priorities in order to effectively manage the horses' health and welfare, maintain the land, maintain their own health, look after staff, and manage a business; often, one or more factors were in conflict. Many described that they could not make a profit from the business, running it only because they enjoyed being around horses. As livery yards are entirely unregulated, each LYM is in constant competition with other yards who might cut corners, keeping costs overall very low.

Conclusions: This study highlights the problematic nature of running livery yards, which result in management decisions which are precariously balanced against multiple competing priorities. Therefore, making changes to any one area is problematic because of the potential for knock on effects. We suggest that more support is needed to assist LYMs in their complex roles, in order to improve their ability to manage difficult decisions and eventually make improvements to equine welfare on their yards.

L7. Tour of Anthrozoology

14:15 - 15:45 Thursday, 24th June, 2021

Chair: Catherine Amiot

L7.1 The Implications of Identifying with Animals for Our Shifting Relationships with Two Omnipresent Groups of Animals in Our Lives: Pets and Meat-Animals

Catherine E Amiot¹, Brock Bastian²

¹UQAM, Montréal, Québec, Canada. ²The University of Melbourne, Melbourne, Victoria, Australia

Introduction: While pets and meat-animals are omnipresent in human lives, the nature of our relationships with them is currently being questioned. The current studies aim to test how the different dimensions through which we feel connected to other animals – solidarity with animals, animal pride, human-animal similarity (Amiot, Sukhanova, & Bastian, 2020) – has implications for our relationships with pets and meat-animals.

Method: Study 1 (N=1,505) was conducted online among Americans. Study 2 (N=330) was conducted among Canadian pet owners. Participants completed the Identification with Animals Scale. Study 1 assessed pet ownership and meat consumption habits. Study 2 assessed the extent to which one's pet facilitates participation in different (e.g., social, outdoor) activities.

Results: Study 1: Binary logistic regressions revealed that solidarity with animals predicted an increased probability of being: a pet owner (OR=0.59, 95%CI [0.90, 1.16]) and a vegetarian/vegan (OR=0.61, 95%CI [0.49, 0.77]). Animal pride predicted the tendency to eat more meat ($\beta=.07$, $p=.081$, 95%CI [-0.01, 0.16]). Study 2: Multiple regressions revealed that the more pet owners reported feeling solidarity with animals, the more their pet facilitated participation in social activities with humans ($\beta=.18$, $p<.01$, 95%CI [0.07, 0.44]); both solidarity ($\beta=.15$, $p<.05$, 95%CI [0.03, 0.46]) and human-animal similarity ($\beta=.14$, $p<.05$, 95%CI [0.02, 0.32]) predicted the perception that one's pet facilitates spending time in nature.

Conclusions: Solidarity with animals, as a prosocial and relational dimension, predicts behaviors that involve integrating animals in human lives (pets) and restricting their consumption (meat-animals). Human-animal similarity predicts the tendency for pets to bring us closer to nature. Finally, animal pride is associated with a tendency to eat more meat, suggesting that this dimension brings out 'animalistic' tendencies in humans.

Amiot, C.E., Sukhanova, K., & Bastian, B. (2020). Social identification with animals: Unpacking our psychological connection with other animals. *JPSP*, 118(5), 991–1017. doi: 10.1037/pspi0000199

L7.2 Measuring the Impact of Prison-Based Dog Training Programs on Recidivism: A Propensity Score Matched Survival Analysis

Tyler Han, Erin Flynn, Riann Pena, Kevin Morris

Institute for Human-Animal Connection, University of Denver, Denver, CO, USA

Introduction: The rapid growth of the U.S. prison population and high re-incarceration rates over the last two decades have made the development of programs that reduce recidivism both an

economic and societal health imperative. The study utilized existing corrections administrative data and a quasi-experimental design to test the hypothesis that participation in prison-based dog training programs (PDTPs) reduces recidivism.

Methodology: Administrative data on 120,451 incarcerated individuals from 10 male and two female facilities in the Washington State Department of Corrections system between January 2004 and May 2018 were included in a retrospective study. Propensity score matching yielded a final sample size of 1,340 incarceration periods, including 674 PDTP periods. Time to recidivism was measured in days from the date of release to the date of reincarceration in jail or prison. The study utilized a Cox proportional hazards model and a Kaplan-Meier estimator curve to compare time to recidivism for individuals who participated in a PDTP and the propensity score matched comparison group.

Results: The analysis found that participation in a PDTP decreases the risk of recidivism by almost 15% ($p = 0.043$) when controlling for demographic variables. In addition, the median survival time for those who did not participate in a PDTP was 576 days compared to a median survival time of 736 days for those who participated in a PDTP. Further, the top strata of time-in-program in a stratified Cox model was highly statistically significant ($p < 0.005$), with participation in at least 3,375 program hours decreasing the risk of recidivism by nearly 35%.

Conclusions and Implications: The study supports the ability of PDTPs to reduce recidivism for at least a specific population of incarcerated individuals, but further studies are needed to identify mechanisms of action and the impacts of time spent in the dog program.

L7.3 Risk Factors for Childhood Animal Harm: The Roles of Attachment, Empathy, Executive Functions, and Callous-Unemotional Traits

Laura M Wauthier¹, Gilly Mendes-Ferreira², Steve Farnfield³, Joanne Williams¹

¹University of Edinburgh, Edinburgh, United Kingdom. ²Scottish SPCA, Dunfermline, United Kingdom. ³University of Roehampton, London, United Kingdom

Introduction: Existing research on child animal interaction has focused on positive interactions, and less is known about the risk factors for childhood animal harm. This research sought to understand the psychological risk factors associated with harming animals, specifically the role of Callous Unemotional (CU) traits, attachment, empathy, and executive functioning.

Methods: The sample was comprised of children referred to the Scottish SPCA's Animal Guardians programme ($n=9$) and controls ($n=18$) matched for age, school, gender, and pet ownership (where possible). The differences between the referred and control children were compared statistically using SPSS. A range of techniques were used: CU traits were measured using teacher-report, attachment was blind-coded using the Child Attachment Play Assessment (CAPA) procedure, executive functioning using a Dimensional Change Card Sort (DCCS), and empathy using child self-report.

Results/findings: There were a range of significant differences between the referred children and the control children. Referred children were more likely to be insecurely attached using the CAPA $X^2(1, N= 24) = 4.44, p = .03$, referred children scored higher on CU traits as rated by their teachers $t(23) = 4.65, p < 0.001$, and referred children performed more poorly on the DCCS test of executive functioning $t(24) = 2.84, p = 0.009$. Interestingly, there was no difference

between the groups on human-directed empathy as measured using Bryant's empathy measure $t(25) = 1.01, p = 0.32$.

Principal conclusions: These results confirm that issues in attachment and behavioural control seem to underpin many cases of animal harm in childhood. Results also suggest that children referred for animal harm do not lack human-directed empathy, despite being high on CU traits. Understanding these risk factors will aid the delivery of animal welfare interventions for children and fits within existing theoretical frameworks for understanding harmful behaviour towards animals.

L7.4 Attitudes to Animal Sentience and the Captive Animal Experience

Arianna West¹, Kenny Rutherford^{1,2}

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Introduction: Perception of animal mind is a key component shaping human-animal interactions and attitudes toward animals. Previous perception studies often exclusively include domestic animals, rarely covering attitudes toward the mental capabilities of wild species. This study addressed this gap by investigating attitudes to wild animal sentience and how this affects concepts of animal welfare in captivity.

Methodology: An online survey questionnaire was distributed via social media outlets to recruit public and zookeeper participants from the United States and United Kingdom. Participants included 131 zookeepers and 133 laypersons. MiniTab19 statistical software was used to perform T-test and logistic regression analyses.

Main Results: The public believed more strongly that animals are capable of experiencing emotions ($p = 0.005$); however, zookeepers consistently gave higher sentience scores to individual specified species. Compared to zookeepers, the public were less likely to believe that all species needs could be met in captive environments ($p < 0.001$) and more likely to believe that keeping wild animals in captivity would lead to suffering ($p < 0.001$). Perceived sentience affected overall belief that captivity leads to suffering more significantly than it influenced belief that a species' needs can be met in captivity, but it did not affect overall acceptance of captivity. Being a zookeeper significantly predicted acceptance of captivity for some, but not all, species. Agreement that an animal's needs can be met in a captive environment was the most significant predictor of captivity acceptance for all species ($p < 0.001$ to $p = 0.036$).

Principal Conclusions and Implications for Field: These findings provide novel insight into the perception of wild animal sentience, factors that influence attitudes to animal welfare in captive environments, and highlight the differing views between zookeepers and the public. These attitudes have the power to influence the future of zoological facilities and regulatory laws related to captive wildlife.

L8. Assistance Dogs

16:00 - 17:30 Thursday, 24th June, 2021

Chair: Kerri Rodriguez

L8.1 Emotions at Work: The Role of Emotional Labour During a Guide Dog's Education

Tiamat J. Warda

University of Exeter, Exeter, United Kingdom

Introduction: Emotional labour is the management of feelings to present appropriate emotion displays in work-relevant interactions. Although the role it plays in the work-lives of humans has been researched extensively, literature on the emotional labour of nonhuman animals is almost nonexistent. This paper aims to offer a holistic understanding of the emotional labour guide dogs perform and how they are prepared to do so by their instructors.

Methodology: Two methods were utilised under the travel restrictions resulting from the Covid-19 pandemic: an autoethnography, based on the researcher's extensive experience as a guide dog mobility instructor, and semi-structured interviews. A guide dog school in Ireland acted as the case study. From 2012 until 2017, the researcher took notes when developing guide dog teams which were referred to as part of the autoethnography. Interviewees were GDMLs, guide dog trainers, managers, further employees of the school, visually impaired clients, and relevant external professionals.

Main Results: Findings show that guide dog work fundamentally requires emotional labour, albeit to differing degrees. This is dependent on their temperament, personality, breeding, upbringing, education, enjoyment of the work, and compatibility with their human partner. Instructors and trainers actively prepare the canines they educate to manage the emotionally heightened situations they will inevitably encounter to improve their well-being and career success.

Principal Conclusions and Implications for Field: This research forms an original contribution to knowledge by defining the emotional labour performed by guide dogs which it proposes is fundamental to the work they conduct. This has theoretical implications, as well as the potential for meaningful application within the guide dog and wider assistance dog sector. Understanding the emotional labour of guide dogs can have a direct impact on the interactions between them and their guide dog mobility instructors and supplement education for future instructors.

L8.2 COVID-19: The Effects of Isolation and Social Distancing on Guide Dog Owners in the UK

Jillian Rickly¹, Nigel Halpern², Marcus Hansen³, Scott McCabe¹, John Fellenor⁴

¹Nottingham University Business School, Nottingham, United Kingdom. ²Kristiania University College, Oslo, Norway. ³Wrexham Glyndwr University, Wrexham, United Kingdom. ⁴Guide Dogs UK, Leamington Spa, United Kingdom

Introduction: In response to the global COVID-19 pandemic, in early 2020, the UK government instituted restrictions aimed at controlling the virus. While effective at bringing down infection rates, the lockdown measures presented numerous challenges and constraints to everyday life that were disproportionately experienced across the population. In early summer 2020, Guide Dogs in

conjunction with the University of Nottingham surveyed people with vision impairment across the UK, with the aim of understanding: the constraints that people faced; how these constraints were negotiated; and their related coping strategies.

Methodology: A quantitative 44 question survey deployed across two weeks via Qualtrics; augmented with 15 qualitative follow-up interviews. The theoretical frame was informed by Constraints Negotiation Theory (Crawford & Godbey, 1987). Descriptive and frequency analyses were carried out on responses to closed questions, along with independent samples t-tests to compare differences in response according to personal characteristics. Qualitative material was analysed using Textometrica; a web-based text analysis tool that affords constant comparative analysis.

Results: 937 full responses were analysed, of which 328 were guide dog owners. 37% of respondents reported comorbidities that make them vulnerable to COVID-19. Key findings showed, for example, that those with a higher household income ($t=2.96$, $p<0.05$), severe vision impairment ($t=3.84$, $p<0.05$) and a guide dog ($t=3.76$, $p<0.05$) were significantly better at negotiating constraints.

Implications: Using Constraints Negotiation Theory facilitated a clearer understanding of the types of constraints faced during COVID-19 by people with vision impairment, and the ways in which constraints were negotiated. Findings highlight a number of potential support and intervention strategies that should be further explored for people with vision impairment, especially guide dog owners, for the present as well as future preparedness.

References

Crawford, D.W., Jackson, E.L., & Godbey, G. (1991). A hierarchical model of leisure constraints. *Leisure Sciences*, 13(4), 309-320

L8.3 From Pet to Assistance Dog: The Changing Relations of Care in the Human-Assistance-Dog Relationship

Jamie Arathoon

University of Glasgow, Glasgow, United Kingdom

Introduction: There are currently 7,000 ADUK assistance dog partnerships in the UK and demand for trained assistance dogs is growing significantly. A different approach to training assistance dogs is taken by the charity Dog AID. Unique in their practices, Dog AID help train people to train their own pets to become assistance dogs, rather than provide people with an already trained assistance dog. This is important as a human-pet bond already exists within the partnerships and through training this develops into a human-assistance-dog bond. This paper thus explores the changing nature of the human-animal relationship and the changing practices of care for clients and dogs of Dog AID.

Methodology: This research draws on a video ethnographic approach which included 23 semi-structured interviews, 19 questionnaire responses, observation, and recording of dog training, with Dog AID trainers and clients. The data were analysed through thematic analysis using NVivo 12 software.

Findings: The analysis presents four themes: the changing pet, assistance animal care for humans, human care for animals, and symbiotic care. Practices of care within the four categories become more prominent as the relationship moves from the stages of pet ownership, to partnership in training, and finally to qualified partnership status. However, for some participants their dogs were doing tasks for them while still pets and the training helped solidify and formalize these tasks.

Conclusion: The findings of this research suggest that the bond between humans and their assistance dogs changes as the dog moves from a pet to an assistance dog. The findings show that care is expressed and practiced symbiotically by both assistance animals and humans through a range of different spaces. The human and assistance dog partnership troubles traditional understandings of care, by positioning care as a multi-species practice.

L8.4 Grief, Loss and Bereavement in Assistance Dog Users

Grainne A O'Connor

The Open University, Milton Keynes, United Kingdom

Introduction: Human-Animal Interaction research (HAI) on companion animal loss though useful, may not be sufficient to capture the complexities of the experiences of loss within the human-animal interaction in disabilities (HAI-D) relationship. In HAI-D the high level of interdependence between a disabled human partner, and the strong attachment bonds with their assistance dog (AD) make them unique. This paper describes key findings from a qualitative research study into the experiences of eleven people living with multiple sclerosis (MS) in the United Kingdom (UK), who between them have used nineteen assistance dogs for more than two decades. Findings relate to experiences of loss, grief and transition from those participants from a lifespan perspective.

Methodology: Eleven people with MS (male n=5, female n=6) who had used an assistance dog for a minimum of two years were recruited from two of the four Assistance Dogs UK (ADUK) accredited charities who provide disability assistance dogs. Single in-depth semi-structured interviews were undertaken. Interpretative Phenomenological Analysis (IPA) was applied to the data.

Main results: Analysis suggests some participants experienced elements of anticipatory grief up to two years before the planned retirement of their AD, this led to an intention to delay getting a subsequent dog or difficulty in bonding with a new AD. In cases of sudden retirement or loss due to behavioural or medical issues experiences of deep grief reactions and ambiguous grief were found. In addition, unexpected issues of power imbalances between participants and the AD charity were revealed around treatment options for health issues. Community acknowledgement of loss was found rather than disenfranchisement.

Implications for the field: These findings suggest more research to support clients to prepare for retirement is indicated including around transition to a subsequent AD and issues of sudden unexpected loss or retirement of an assistance dog.

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Animals in Art, Literature, History, and Culture

The Pig in *Pornocrates*: Pig Races, Pornography, and Porcine Representation in Fin-de-Siecle Europe and the United States

Thomas Aiello

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Pornocrates (1878) is the most influential work of Belgian artist Félicien Rops. Featuring a naked woman with a blindfold walking behind a tethered pig on a marble floor, as angels fly away, the work caused controversy on its first appearance. It has been interpreted by critics and art historians as representing various possibilities. Perhaps the pig is representative of men leading along women, perhaps the pig is a stand-in for luxury and sloth. For Bram Dijkstra, the woman “was the human animal viciously depicted by Félicien Rops as ‘Pornocrates’ ruler of Proudhon’s ‘Pornocracy,’ a creature blindly guided by a hog, the symbol of Circe, the bestial representative of all sexual evil” (1986: 325). While the evolution of how critics and scholars have interpreted the relationship between woman and pig is important, what none of them acknowledge is the existing status of the human relationship with pigs at the turn of the century, or the phenomenon of blind pig races that mirrored the action taken in the painting. Nor do they mention that the common appellation “blind pig” was used to describe bars and pubs at the same time. This presentation will describe the history and criticism of *Pornocrates* in relation to interpretations of human-animal difference and compare the work to the largely unknown story of blind pig races and blind pigs, themselves--like the finery presented in Rops’s painting--arbiters of social standing in fin-de-siecle United States and Europe. By viewing art history through an anthrozoological lens, the meaning of works such as that of Félicien Rops changes significantly, creating an analysis that addresses several of the ISAZ conference’s themes, including studying animal behavior in human-animal interaction contexts, the pet effect, companion animals and their caregivers, and, most directly, depictions of animals in art, literature, and culture.

Art After the Animal Turn

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Introduction: While animals in art have traditionally been viewed from an aesthetic, functional, didactic or iconographic point of view, the recent change of attitude towards animals commands that artists, art historians, and audiences increasingly represent, perceive and understand animals as feeling, thinking, communicating individuals with agency.

Methodology: Evaluation of all relevant published guidelines aiming at the regulation of the use of animals in artworks (Guidelines College Art Association, Fieldguide for Interspecies Collaboration, Minding Animals Guidelines) and their perception in the art world. Review and analysis of selected artworks (namely interspecies art, art for animals, and 'artivism') that have been produced and exhibited since the year 2000.

Main results/findings: I have identified two important symptoms of the Animal Turn in the visual arts working in opposite directions: On the one hand artists face limitations when they want to work with animals and animal imagery because of a new sensibility for ethical issues that has been formulated in guidelines. These rules might intervene in their artistic freedom and have thus been regarded as a form of censorship. On the other hand, the Animal Turn furthers an expansion of art and introduces animals as creative collaborators and audiences: Innovative art forms that involve live animals have emerged and challenge the traditional notion of art and expand the field of art. But in some cases, instrumentalizing animals in aesthetic practices borders exploitation.

Principal conclusions and implications for the field: The Animal Turn brings about new restrictions as well as new possibilities for artists, each with their own pitfalls. But the various symptoms of the Animal Turn can be reconciled. By involving animals in a respectful and caring way that allows for their agency and individuality, it is possible to revolutionize the art world and improve the situation of animals at the same time.

Riot Dogs as Revolutionary Symbols—to What Extent Are Their Stories Informed by Gendered Expectations?

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“Riot dogs” have recently come to be prominent symbols of revolution, stemming from protests in Greece and Chile, respectively, which saw free-living dogs join humans in protests and remain despite deployment of tear gas and other harmful deterrents. A distinct notion of sociopolitical belonging was conferred upon these dogs by their respective communities which was linked to ascription of agency, commitment to activism, and adherence to a particular ideology. To date, the riot dogs who were named and who gained international media attention have been male. While this is likely coincidence rather than a conspiracy to invisibilize female participation in protest, historically, women’s roles in protest have been diminished. This paper analyzes how these dogs’ stories have been told and suggests they are informed by gendered expectations. Ultimately, I suggest that part of these dogs’ symbolic legacies is anthropomorphically linked to a perceived embodiment of masculinity. I theorize that emphasizing “maleness” over “dogness” could perpetuate notions of a gender division in revolution and inadvertently eclipse women’s participation in social protest.

Portrayals of Animals in Covid-19 News Media

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With animals as the primary and intermediary vectors of Covid-19, we seek to understand the ways in which animals have been represented in UK news media during the emergence of the global pandemic and how these portrayals impact the lives of humans and animals. Using the Lexis-Nexis online media archive, we searched for news media reports featuring animals during the emergence of Covid-19 in the UK from the period January-October 2020. We analyzed a total of 452 news articles from three UK newspapers, the Daily Mail, the Sun and the Guardian. Newspaper articles were thematically coded and qualitatively analyzed for emergent themes. Using a trans-species lens, we explore three main themes: “It’s their fault”, “It’s not their fault” and “It’s our fault”. Each theme illustrates how animals are represented by news media in the attribution of blame and victimhood of those impacted by the coronavirus pandemic. Our results show that animals are utilized by today’s hyperpolarized media as tools to promote the political and social ideals of the press and their respective readership. Tabloids used animals for the promotion of bigotry, xenophobia and racism. In comparison, the Guardian held a pro-environmental stance by framing the zoonotic disease as a platform to challenge the human-animal dichotomy and advocate for environmental, human and animal equality. Domestic companion animals received the greatest positive media coverage across newspapers, particularly in relation to the value of the human-animal bond for human health during lockdown. In comparison, across broadsheet and tabloid press, animals in research received limited coverage. Research animals were neither recognized for their contribution to human health and as vulnerable others impacted by Covid-19. The specific impacts of these themes upon animals are discussed.

Attitudes Toward Violence: Do Attitudes Toward Intimate Partner Violence Correlate with Attitudes Toward Animal Cruelty?

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The idea that violence toward nonhuman animals is related to violence against humans is not a new proposition. A robust body of literature explores correlations between cruelty to animals and human-directed violence. Indeed, many have argued for the importance of family professionals recognizing the impact that violence toward animals has on all aspects of society. Acts of intimate partner violence (IPV) and abuse of nonhuman animals are common, harmful, and co-occurring phenomena. Amid growing societal pressures on reducing violence, it is crucial to locate animal cruelty within the spectrum of intimate partner violence (IPV). Recently, several studies have focused on individual variation in attitudes toward the treatment of animals and findings have suggested correlations between attitudes toward animal cruelty and attitudes towards IPV. The field of violence prevention continues to struggle with accuracy in predicting violence, thus an understanding of the link between attitudes toward violence can be an important step in understanding the development of violent behaviors. This study expands on this recent work to examine the relationships between attitudes toward the treatment of animals and attitudes toward the treatment of dating partners in a sample of college students. Using a self-report methodology, scores on standardized scales explicate potential correlations between attitudes towards treatment of partners' animals and treatment of dating partners. The presentation reports study findings and provides recommendations for practice and future research.

A Comprehensive Review of Music for Animals from a Musicological Perspective

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Introduction: In the last decade, studies on the effects of human music on several nonhuman animals, including dogs, pigs, cats, horses, chimpanzees, bonobos, gorillas, macaques, gibbons, tamarins, rats, mice, grey parrots, budgerigars, and sea lions, have been published. The music mostly belongs to Western classical and popular music styles. While scientists designed the experimental settings, musicologists were seldom included. This paper comprehensively reviews the evidence for effects of human music on animals from the point of view of music theory and musicology. It also shows potentials and challenges for future research collaborations between scientists and music researchers.

Methodology: Published findings from 2010–2021 in the fields of biology, psychology, and veterinarian medicine were collated and reviewed. The study design included discourse analysis and music analysis.

Main Findings: While the experimental designs are normally well documented, the implicit assumptions and culturally induced biases concerning the aesthetics of music are rarely reflected. Data on musical details (style, composition, sound recording medium, volume, length of time) is surprisingly often imprecise or missing. The aesthetic value of certain pieces of music is often treated as a given, ignoring findings from ethnomusicological and zoomusicological research on the diversity of human and nonhuman music cultures (cf. bird song, whale song). There is a need for critical assessment of eurocentrism and anthropocentrism in the field of empirical aesthetics in music.

Principal Conclusions and Implications for Field: Empirical evidence suggests that music can have effects on nonhuman animals. At the same time, the discourse on such effects has to be contextualized with findings of music history and the cultural history of human-animal interactions. Future studies would benefit from more interdisciplinary collaborations between scientists and music researchers, while at the same time such collaborations will bring challenges of finding common grounds when it comes to ethical and aesthetical questions.

Tracing *Testudines* in Jessica Grant's Novel, *Come, Thou Tortoise*

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Introduction: The narrative provided by a nonhuman agent is still rather an uncommon method of narration, usually burdened with farfetched anthropomorphization. This paper aims to explore distinctive features that construct the representation of the nonhuman narrator, precisely the tortoise, in accordance with the scientific truth; the role the anthropomorphization in this process is also traced.

Methodology: The novel is analysed from perspectives of Mieke Bal's theory of narration as well as interdisciplinary animal studies.

Main results/findings: Published in 2009 novel *Come, Thou Tortoise* is a unique example of bringing human and nonhuman narrative agents together. Interactions between characters reveal species requirements of the tortoise that play a crucial role in constructing the female tortoise's literary representation. Apart from the physical characteristics: shell, cloves, eyelids that cover the eyes from below, to name a few, the tortoise's diet and the habitat she should live in as an ectotherm are the most commonly commented references to the biological science. As a matter of fact, the narrative technique, applied to the novel, builds the representation of the nonhuman on two levels: the first that presents biological organism and the second, more approachable for a human, shows the anthropomorphised image of a nonhuman.

Principal conclusions and implications for the field: The analysis suggests that although anthropomorphisation evokes human empathy, as well as raises public awareness of the problems of the others, direct references to species requirements are necessary to understand the tortoise's distinctiveness from the human beings. Whilst anthropomorphisation poses a threat for nonhuman particularity, this is the exclusive way people can juxtapose their inner life with the one that each animal possesses and bridge the literary human-nonhuman gap.

What Say You, Dog? Multiple Case Studies Analyzing Modern-Day Animal Trials

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Introduction: Throughout medieval times and into the modern era animals were made to stand trial for their transgressions. While these kangaroo courts seem anachronous in our contemporary era, vestiges of this legal tradition may persist today. Every month, dogs become the subject of code violation hearings in local jurisdictions across the United States. Of interest in this study are the appeals to dangerous orders heard in these quasi-judicial hearings.

Methodology: Through collective case study analysis, this study used snowball sampling to conduct in-depth, semi-structured interviews with dangerous animal hearing board members from three animal control jurisdictions in Maryland. Data from their interviews and archives were compared to semi-structured interviews with experts in the analysis and modification of canine aggression.

Main Results: Coding and thematic analysis identified several themes:

- There are fundamental differences between how experts and board members approach analyzing an incident, view causes of aggression, and approach management.
- Board members were dismissive of or reluctant to hear from behavior experts.
- Board members self-described as objective mediators—observations revealed emotional decision making and groupthink.
- Board members unanimously reported negative feelings toward attorneys.
- Word choice patterns suggested board members view hearings as criminal trials with canine offenders.

Principal Conclusions and Implications for Field: This study highlights gaps between what is known about canine ethology and the decision-making process in these hearings. The restrictions imposed through dangerous orders can have negative welfare implications for dogs and can strain the human-animal bond while not serving to meaningfully protect the community. This system mirrors the human criminal justice system, from the language to the emphasis on incapacitation and a clear disregard for rehabilitation. Drawing attention to these issues may help to inform more just, welfare-oriented policies and procedures.

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Evans, E. P. (1906). The criminal prosecution and capital punishment of animals. w. Heinemann.

Public Attitudes toward Animal Use at Festivals in South Korea

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Local festivals are arenas of ecological and cultural experiences for visitors. However, there are numerous animals at festivals who are watched, petted, caught, or even thrown in suffering. Animal advocates expressed concerns about the way animals are used at the successful local festivals, which led conflicts with locals concerned about losing visitors because of the issue. To investigate public attitudes toward animal use in the festivals, we conducted an online panel survey (N=1,000) in September 2020. The survey included questions asking experiences related to animal festivals, opinions on animal welfare issues at the festivals, awareness of animal abilities, pro-animal attitude, demographic data, as well as agreement on strengthening the animal welfare regulation for animals in the festivals. Statistical analysis was performed using SPSS 26.0.

As a result, about 80% of the respondents thought it is unethical to cause unnecessary pain in animals (77.3%) and the animal welfare regulations on using animals in festivals should be fortified (77.2%). They prioritized to preserve ecologically important species and to ban animal training and racing and gambling events using animals at the festivals. The 71.4% of the respondents agreed that animal-friendly festivals are ethically desirable. The 59.5% of them hesitated to participate in animal festivals due to criticism that the festivals cause pain to animals. Individual characteristics such as gender (female), political orientation (progressive), pet-owned, and their attitudes toward animals and perceptions of festival animal issues are significantly correlated ($p < 0.05$) with the agreement on strengthening the animal welfare regulation for animals used at the festivals. The study findings show that the majority of public as potential visitors, are likely to be interested in welfare of animals used at festivals. Therefore, animal welfare can be an important factor in the sustainability of Korean festivals to be considered in the near future.

Alive Together: Beyond Depiction. How Interdisciplinary Approaches Across Art, Science and the Humanities Can Inform the Ways in Which Humans and Animals Co-Exist Together

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Introduction: Recent international art exhibitions, including ZKM's [Critical Zones](#), FACT Liverpool's [And Say the Animal Responded?](#) and Pierre Huyghe's [After A Life Ahead](#) highlight a growing interest in deepening our connection with animal kin across disciplinary borders. Interdisciplinary approaches bring new ways to engage with human/animal relationships, yet many initiatives are in practice transactional. Here, we present an approach that moves beyond the use of art to depict animals, through developing deep collaborative practices.

Methodology: [Alive Together](#) is an interdisciplinary educational course designed to bring together the sciences, humanities and arts to develop a ground-up approach to exploring human/animal relationships. Keynote lectures and exercises introduce participants to the topic from the perspective of arts, ethology and humanities and to the development of interdisciplinary projects. The first edition held online in December 2020 brought together 17 international participants, including artists, ethologists, anthrozoologists and humanities scholars.

Main findings: Three fledgling projects were developed over a 2-week period: an audio-visual experience of the human/whale relationship through whale song; an interactive performance on the many faces of the rat/human relationship and a toolkit for practicing languages of love and vulnerability in human/animal relationships. Each draw on the specific skills of practitioners to present a novel approach to understanding human/animal relationships. The experiential qualities of these projects cannot be verbalized in an abstract but will be presented at the conference.

Principal conclusions and implications for the field: The structure of the course allows for deep engagement with topics and provides time for interdisciplinary relationships to be nurtured and grow beyond the duration of the course itself. Further, the project provides space for developing collaborative projects that are generated through mutual respect, rather than transactional needs. Such approaches actively critique existing ways of working and lead to processes, practices and outcomes that transcend disciplinary boundaries.

Human-Canine Relations in the Holocaust: The Rescue of Jews Thanks to Dogs and Their Bonds with Them

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During the Holocaust, Nazi dogs were considered a symbol of the Nazi regime and were brutally used to terrorize, mutilate, attack, and even kill Jews. Traumatic testimonies of survivors have given rise to commonly accepted notions that Nazi dogs are a source of disturbing memories and arouse negative emotions such as fear and repulsion. Images of vicious, barking canines, specifically the Doberman and the German shepherd, have also become a widespread element in the Holocaust's representation in popular culture.

While survival stories of Jews in the Holocaust have been exhaustively documented in the literature, the present study deals with unusual and inspiring accounts that have been scarcely dealt with and are practically unknown. My research focuses on cases in which Jewish lives were spared thanks to dogs that protected them, kept them company, shared their food and kennel with them, and even refused the Nazi commanders' orders to attack or reveal their hiding place. Frequently, these dogs were punished and sometimes even killed because of their sociable attitude towards Jews.

The aim of this cultural and narrative research is to analyze survival stories of Jews in the Holocaust who escaped extermination thanks to dogs. It examines their meaning in context of human-animal relations, and also attempts to illuminate the dogs' perspective of Holocaust events, their exploitation as an instrument of cruelty against their will, and their status as victims of the Nazis.

Changing Perspectives Regarding Captive Wildlife

Captive Elephants at the Crossroads of Culture, Conservation and Tourism

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Captive elephants in Nepal find themselves in a liminal space. Not quite wild, not domesticated, revered but trapped in service to humans. These elephants and their caregivers find themselves at a crossroads as younger generations and NGOs/INGOs put pressure on owners to change their methods. These organizations wish to see an end to elephant-backed tourism, and the transfer of working elephants to sanctuary. However, the situation is far more complex than it seems, and an immediate cessation of riding could be disastrous for both elephants and mahouts. A long-term plan is needed, and various organizations have attempted to create one, but elephant owners and elephant NGOs are at an impasse.

This study is two-fold. What is missing from the conversation is academic research on the health and welfare needs of these elephants, and practical ways for organizations to work together to support these needs. The first half of this project includes an assessment of the health and welfare considerations of the elephants in the Sauraha area of Nepal, along with an examination of the ways in which organizations attempt to influence this care. Through an examination of the language of care and ethics each organization uses to discuss elephants and elephant welfare, we can identify the best practices of each group. The ways in which these organizations work together, or fail to do so, is key to finding a common language of care, conservation and ethics among those who wish to change the lives of captive elephants.

A Preliminary Analysis of the Difference in Zookeeper Attachment to Animals by Taxonomic Groups

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Previous literature has established the connection between HAB & HAR between animals and their caretakers directly influences welfare, particularly in mammalian species. This study set out to examine the difference in self-reported bonds by zookeepers and how these bonds potentially influence perceptions of welfare. Findings demonstrate there is a statistically significant difference between taxonomic groups and the average bond as measured by the Lexington Attachment to Pets Scale, $[F(4, 108) = 2.68, p = .038]$. This difference is not observed based on other participant factors, including years of professional experience, gender, or ethnicity. Preliminary findings suggests there is a relationship between LAPS scores and welfare scores, $r(114) = .250, p = .008$. As in the LAPS scores, there was a significant difference in welfare scores between taxonomic groups, $[F(4, 108) = 2.630, p = .038]$.

Human Perception of Primate Facial Expression and Its Impact on Human-Wildlife Interactions: A Developmental Approach

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Introduction: Facial expressions can convey important communication cues which in turn may affect human-wildlife interactions. However, people are poor at judging animal emotions from their facial expressions and consequently, are not good at accurately predicting subsequent behaviour. This raises concerns for human safety and animal welfare as poor judgement can result in risk escalation and, at worst, in aggression. This is particularly dangerous for younger individuals as over 50% of wildlife bites such as monkey bites are received by children and young adults, aged 2-29 years old. This research explores whether human perception of animal facial expressions influences human approach behaviour using a developmental approach.

Methodology: Eighty-one children (4-6,7-8, 9-10 years), 45 young adults (18-22 years; $M = 19.4$, $SD = 0.92$), and 58 adults (26-66 years, $M = 37.47$, $SD = 7.04$) were presented with 16 human and 20 macaque faces in a questionnaire including friendly, aggressive, very aggressive, distressed and neutral expressions. In addition, 5 real-size, cardboard macaques with these expressions were used in a practical approach behaviour task. Participants were asked to attribute an emotion to each face, and to indicate how close they would approach.

Main Results: Analysis suggests that humans are overall poor at judging emotional states of macaques ($M 26\%$, $SD 9.6\%$), and this ability does not improve with age ($F(4, 172) = 2.179$, $p = 0.073$). Younger participants were found to get significantly closer to the macaques compared to older participants ($F(2,54) = 3.277$, $p = 0.045$), with boys more often approaching aggressive macaques (48%) compared to girls (32%).

Principal Conclusions and Implications for Field: Our findings highlight the lack of human understanding of animal communication cues without training. Better understanding of animal communication cues is needed for mediating approach behaviours, and safer human-wildlife interactions, in particular for children and young adults.

How Are You? Understanding the Sorrows and Joys of Caring for Animals in Zoos

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Providing care for wild animals in zoos and aquariums (henceforth zoos), as well as wildlife centres and sanctuaries, brings many joys and positive experiences, but can also leave someone emotionally drained or numb by negative experiences. Animal caregivers, curators, veterinarians, researchers, and other animal welfare staff (henceforth zoo professionals), often have high levels of compassion, empathy, and drive to care for others and effect change. Caring for and serving others gives a sense of joy and achievement, creating compassion satisfaction. Recruitment of and access to social support, working in an effective team, supervising and directing positive outcomes, gaining professional experience, and using self-care strategies promote compassion satisfaction. Yet, these positive experiences often are combined with painful ethical dilemmas, where optimal solutions are not feasible, and decisions must be from among a variety of sub-optimal alternatives; this creates moral stress. Repeated exposure to distressing events such as neglect, inaction, and animal euthanasia, can leave zoo professionals at risk of compassion fatigue or burnout. Common symptoms of compassion fatigue can include feeling mentally and physically tired, with sadness and apathy, bottled-up emotions, and an inability to get pleasure from activities that previously were enjoyable, as well as a lack of self-care. These serious problems have been well-documented among workers in settings such as veterinary practice, laboratory animal care facilities, and animal shelters, but they have scarcely been addressed in zoo environments.

Based on survey and interview data, this paper will provide specific examples of challenging circumstances facing zoo professionals. A brief overview of strategies for preventing and addressing compassion fatigue and enhancing compassion satisfaction will be presented, drawing on current experiences and research literature. It will also outline various approaches and frameworks and conclude with future directions and recommendations to further the study and practice of zoo professional wellbeing.

Development of a Composite Welfare Assessment for Bears (*Ursidae*) in Zoos

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Animal welfare assessments are an important instrument in monitoring animal welfare, and animal welfare is increasingly important to the global zoo community – both in terms of public perception and in terms of supporting effective in-situ and ex-situ conservation initiatives. Bears are commonly housed in zoos, are long-lived, wide-ranging carnivores, and the eight bear species each have their own species-specific and individual needs. A number of behavioural and physiological welfare indicators have been described in bears, but as yet no validated composite bear welfare assessment tool exists.

This study describes the development of a composite welfare assessment for use across all eight bear species in zoos. Using indicators derived from the literature, an assessment tool was developed as well as a training tool detailing how to use the welfare assessment tool.

Despite certain reservations within the scientific community, keeper assessments have shown high reliability in multiple zoo species and allow for the integration of data over a longer period of time. A total of 27 bear keepers, to date, from zoos around the world were recruited to trial the tool with their own bears, comprising 35 individuals and six species of bear (brown bear, American black bear, polar bear, sloth bear, Andean bear, and Giant panda). The participating keepers were asked to assess their bears three times across the space of nine days. Intraclass correlation coefficients analysis was used to assess inter-, intra-rater and item reliability. The inter- and intra-rater reliability showed good to excellent levels of agreement (>0.7 , $p<0.05$). Reliability increased when the indicator for aggression was removed in the case of five bears, as well as abnormal behaviour and social play in four bears.

This presentation will give an overview of the tool development and reliability testing and present a new composite welfare assessment tool for bears in zoos.

How Human-Animal Relationship Affects the Behavioural Response in a Working Context: The Asian Elephant as a Study Case

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Introduction: The nature of relationships between people and animals has been of interest for many centuries. However, the experimental study of these interactions is a relatively recent development, despite the suggestion that Human-Animal interactions may have consequences for animal welfare. Intriguingly, although the Human-Animal relationship is an important factor to take into account in animal management, researchers have to date overlooked some animals: the working animals for hard labor known as draught animals.

Methodology: To investigate the human-Draught Animal relationship, 87 Myanmar timber elephants were asked to respond to the call of their own mahout (elephant caretaker) or the call of another mahout. These tests aimed to assess if a long-lasting relationship between handlers and animals affects the quality of the elephant response in a working context.

Main Results: The analysis revealed that most of the elephants responded only to their own mahout and elephants responding were less disturbed by the novel surface when they had a long-lasting relationship with the mahout calling. The success rate was also driven by the age of the elephant in interaction with the mahout's identity, indicating the importance of training and for the animal and handlers to know and understand each other.

Principal Conclusions and Implications for Field: This study is the first to experimentally assess the relationship between handlers and draught animals, highlighting its importance in improving work quality and performance. Further research is needed to investigate the role of the Human-Draught Animal relationship in terms of animal welfare and handlers' security.

How Are Elephants' Welfare and Emotional States Perceived During Elephant-Caregiver Interactions in Zoos?

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Introduction: “It is ironic,” according to Reade and Waran (1996: 109), “that although zoos have always been one of society’s most popular institutions, there has been a scarcity of research devoted to studying the human experience of zoo animals.” This multi-tiered study illuminates this insufficiently investigated topic as it relates to human perceptions of animal welfare and emotional states during animal-caregiver interactions in zoos, with a focus on elephants.

Methodology: Employing largely qualitative data obtained via in-person surveys, online surveys, focus group discussions and personal interviews, a variety of parameters inherent in complex multi-species relationships were explored, such as: reinforcers offered, behaviors requested, messaging delivered to guests, and tools utilized during interaction.

Main Results: The results of this study found that perceptions of elephant welfare and emotional states are elevated under conditions of receiving reinforcers when compared to being asked to complete behaviors. Furthermore, when animals demonstrated some autonomy or playfulness and when the animals appeared comfortable and trusting of their human caregivers, perceptions of welfare and emotional states were most positive. Respondents perceived intimate tactile contact such as scratching an elephant's inner ear as indicative of positive human-animal relationships and bonds. Negative perceptions were evident under conditions of aversive tool use, specifically the ankus and herding dogs.

Principal Conclusions and Implications for Field: This study concludes with a formula for positively perceived elephant-caregiver interactions in zoos that incorporates reinforcing with play opportunities, using sincere tactile contact, fully explaining husbandry behaviors demonstrated, engaging in the topic of animal emotions, demonstrating action behaviors, demonstrating wellness activities, eliminating aversive tools, avoiding token food offerings, demonstrating elephant-caregiver bonds and discussing elephant-caregiver relationships.

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Community-Based Initiatives to Increase Pet Adoption and Retention

A Case Study on the Improvement of Rescue Rates of Dogs and Cats at a Municipal Animal Shelter

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Introduction: Every year, 6.5 million dogs and cats are brought into United States animal shelters, but only half that number are adopted and nearly a quarter are euthanized (ASPCA 2021). However, the figures from the Animal Care and Control Division of Bloomington, Indiana, are much more favorable than the national average. In 2019, 68.8% of the intake at Bloomington's municipal shelter were adopted and only 7% were euthanized. This paper examines the measures taken by the City of Bloomington to save animals and reduce euthanasia.

Methodology: Two data spreadsheets from the shelter were analyzed. Attention was focused on the various ways dogs and cats are moved from the shelter and trends were observed over the past 15 years, which are represented in visual charts. Additionally, the director of the Bloomington Animal Shelter was interviewed about the city's effort to save animals.

Main results/findings: Bloomington makes a vested effort to save animals through low-cost spay and neuter, TNR, foster programs, adoption fairs, educational outreach, and other means. A progressive-minded community culture is also an important factor. Adoption has increased from 33.84% in 2004 to 68.83% in 2019. Euthanasia has dropped from 40.60% in 2004 to 7.02% in 2019. Cats face more difficulty than dogs in being adopted but the foster program has helped with this immensely. Overall success has depended on the totality of several cultural and political factors.

Principal conclusions and implications for the field: Communities can increase the rate at which animals are rescued from shelters through programs similar to the ones employed in Bloomington. Efforts are also significantly aided through the election of city officials who value animal welfare.

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Subsidized Veterinary Services –Assessment Must Include More Than Mere Number of Animals Served

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Introduction: Many homes include at least one dog or cat, and with these animals comes substantial veterinary costs. These costs are prohibitive for many households, denying many people the benefits of companion animals. Yet, financial limitations are not the only barrier to accessing veterinary care and several types of low-cost/free veterinary programs have been created to address these barriers. While success of these programs is often measured by number of animals served, how animal guardians view their experiences with these programs is an equally important element when determining success. Furthermore, assessing these programs' abilities to address barriers beyond financial (e.g., transportation, veterinary-client communication) can help ensure that they effectively meet the needs of those targeted.

Methodology: The perceptions of animal guardians who accessed services from two veterinary assistance programs (a low-cost veterinary clinic and a mobile veterinary clinic) were assessed via written and verbal surveys.

Main Results: Approximately half of respondents reported their animal had not received veterinary care prior to accessing these programs. When queried about their experiences, the feedback was overwhelmingly positive (e.g., ~95% reported feeling respected and cared for by the veterinary team). Areas for improvement included veterinarian teams' discussion of treatments/procedures and costs. Identified barriers to care included uncertainty of the programs' hours and schedule as well as transportation issues were noted.

Principal Conclusions and Implications for Field: For many animal guardians, low cost/free veterinary care services are their first and/or primary source of veterinary care. It is critical to ensure that these programs meet the needs of their intended population in a positive, supportive manner. Assessing the communication and interactions of veterinary staff is a critical component of determining the overall success of these programs. The programs analyzed in this study offer examples of superior programs and potential models for other communities.

Enhancing Marginalized Populations' Utilization of Companion Animal Support Services Through the Use of a Cultural Competence Inventory

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Introduction: Cultural competence is recognized as a critical component of reducing racial and ethnic disparities within human healthcare settings, but it is rarely intentionally incorporated into evaluations of companion animal support services (e.g., veterinary medicine, animal sheltering, animal law enforcement). Current policies and practices in animal services have led to a pattern of negative engagement with historically marginalized populations that perpetuate health inequities for both families and their pets. This presentation will describe the development and validation of a novel instrument to assess cultural competence within animal services.

Methodology: The reliable and validated Tucker-Culturally Sensitive Health Care Inventory Provider and Patient Forms were adapted for use in animal service settings. These instruments were initially designed through focus groups with members of historically marginalized groups and are further distinguished by their ability to evaluate and directly compare self-assessed and client-assessed perceptions of cultural competence, whereas most instruments rely on providers' self-assessments alone. To facilitate participation from Spanish speakers, the client form was translated to Spanish with guidance from a bilingual research committee.

Results: The study recruited 18 current animal service providers and 600 clients in communities served by The Humane Society of the United States' Pets for Life program. Previous studies used to validate the original instruments had samples of 200-300 participants, indicating that 600 is more than sufficient to detect a small effect and validate the instrument using exploratory factor analysis.

Conclusions and Implications: This instrument has the potential to strengthen the animal welfare field's commitment to cultural competence and demonstrate its impacts on animal health and welfare. By providing a means of elevating the voices of members of historically marginalized communities, the field of animal welfare can learn how to better support communities that have regularly been denied high-quality animal welfare services.

Companion Animals and Their Caregivers

To Cue or Command? A Qualitative Analysis of Word Use and Choice by United States Dog Trainers

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Introduction: Dog trainers' choice of words to describe what they do may provide information about how a trainer understands and relates to the dogs they work with. To date, there has been little analysis of the words that dog trainers use or whether specific words or phrases can readily differentiate the type of training methodology practiced.

Methodology: We analyzed the texts of 100 dog trainer philosophies from 10 US cities qualitatively. Trainers were identified as using either positive reinforcement or balanced (mixed use of reinforcement and punishment) training methods by trainer self-identification or tool use. Using the text analysis software, MAXQDA, specific words or phrases were turned into codes that then were examined for the context and frequency of their use across the 100 philosophies considering the trainers' different methodologies, gender and certification status.

Main Results: 20 word codes were analyzed across all documents. Some codes differentiated between training methodologies, particularly those related to equipment use. For example, when referring to corrective collars, balanced trainers used the words "electronic collar" and their use; for the same tool, positive reinforcement trainers used "shock collar" and how they were never used in their training. Only 19 trainers were certified by third party groups.

Principal Conclusions and Implications for Field: This research showed that dog trainers differ in word choice and context in describing their methodologies. However, there was also a wide variability in word use leading inconsistencies in information spread to the public. The low rate of certification also heightens concerns about the scarcity of licensing and oversight of the nation's dog trainers.

Impacts of Mobility and Medical Alert Service Dogs on Caregivers

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Introduction: Mobility and medical alert service dogs are an increasingly common assistive technology for individuals with disabilities. Caregivers of individuals with disabilities can be subject to stress due to their responsibilities. Understanding how service dogs may influence caregiver stress is crucial for promoting well-being. The purpose of this study was to analyze caregiver accounts to understand the benefits and challenges of mobility and medical alert service dogs.

Methodology: Participants were recruited from a national service dog provider, Canine Assistants. A total of 117 caregivers participated in a survey including n=72 caregivers of individuals who had previously received a service dog and n=45 caregivers of individuals on the waitlist to receive a service dog. Caregivers completed a set of open-ended questions regarding their expectations or experiences with service dogs, which were analyzed using a conventional content analysis.

Results: The analysis was organized into four major themes: family benefits, caregiver benefits, assistance through service dog's training, and drawbacks. Benefits to the family included emotional support, the human-animal bond, and general positive impacts of the service dog. The most common benefits to the caregiver included stress reduction and the service dog as a replacement for the caregiver. The assistance provided through the dog's training was mentioned more often by caregivers on the waitlist for a service dog. The most common drawbacks described were general maintenance, increased responsibility associated, and issues with traveling with the service dog.

Conclusions: Findings suggests that benefits of a service dog go beyond the recipient to reach the caregiver and family as well. Results from this study provide critical insight for mental health professionals who are working alongside caregivers of individuals with mobility and medical alert service dogs. Awareness of both benefits and drawbacks may provide more realistic expectations of mobility and medical alert service dogs.

Medical Alert Dogs Are Alerting to Multiple Conditions and Multiple People

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Introduction: Emerging reports claim that medical alert dogs (MADs) are alerting to health conditions other than those for which they were trained or first began alerting, and to people other than the person for whom they were trained or first began alerting. The aim of this study was to document this phenomenon empirically and examine whether any variables were associated with dogs alerting to multiple conditions, multiple people, or both.

Methodology: MAD owners completed an online survey containing sociodemographic questions about the person to whom the dog alerted, demographic and training questions about the alerting dog, and questions about the conditions to which, and people to whom, the dog alerted. Fisher's exact tests were used to determine whether there were any significant relationships between the demographic variables and whether or not the dog alerted to multiple conditions, multiple people, or both.

Main results/findings: In a sample of MAD owners (N=61), 84% reported that their dog alerted to multiple conditions, 54% reported that their dog alerted to multiple people, and 46% reported that their dog alerted to multiple conditions and multiple people. Analyses revealed that for dogs without formal training for medical alert, there was a marginally significant relationship between the amount of time the primary person had been with their dog before and whether or not the dog alerted to multiple conditions ($p = .004$, two-sided Fisher's Exact Test).

Principal conclusions and implications for the field: MAD owners commonly report that their dogs alert to multiple conditions and multiple people. This is the first study to empirically document this phenomenon and the findings highlight the need for further studies to investigate the mechanisms by which dogs may be able to detect multiple conditions and/or multiple individuals' conditions. Factors that may contribute our findings will be discussed.

Cats in the Community: Social Discourses Surrounding Free-Roaming Cats in Urban Neighbourhoods

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Introduction: The domestic cat (*Felis catus*) occupies a somewhat liminal status between a domesticated and wild animal. Although many disagree, plenty of people insist cats are happier and healthier when allowed to roam. Furthermore, cats who are unsocialised to humans struggle to adjust to living within human households. My research examines discourses surrounding free-roaming cats in urban neighbourhoods, and explores various ideas about domestic, urban, and wild animals, and cats in the community.

Methodology: Thematic discourse analysis of comments and exchanges associated with media stories, survey responses, and case study interviews were used to identify key themes within discourses surrounding free-roaming cats.

Results: Different ideas emerged regarding owned cats and guardian responsibilities. Those who consider cats to be domestic animals often deem guardians who allow cats to wander as irresponsible in terms of cat welfare, and/or inconsiderate towards their neighbours and local wildlife. Others attributed a 'wild' or semi-wild nature to cats that rendered confinement a form of imprisonment bordering on cruelty. Unowned cats are most typically viewed with either pity or distain, with only a minority favouring a 'care in the community' approach. The desire to 'rescue' is a common theme, but the different needs and desires of individuals are often overlooked. Concern for predation of local wildlife, especially birds, is a major source of contention. Even where wildlife populations are unlikely to be affected, predation by cats is often disapproved of.

Conclusions: Discourses surrounding free-roaming cats reflect broader social discourse related to social control, biopolitics, and responsibilities towards domestic animals and wildlife. Furthermore, the recognition that cats are individuals with different needs is often overlooked. With a deeper understanding of the various stakeholder and their perspectives, efforts can be better tailored toward workable solutions that benefit cats, the people who care for them, wildlife, and the community.

Between Your Social Setting and Mine: A Micro-Analysis of Goal-Oriented Dog-Owner-Interactions

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Studies show that human-animal interaction is possible on different levels. To be able to interact with each other, both humans and animals have to recognize the respective member of the other species as a possible interaction partner and be prepared to enter into communication with them. The success of this relies on both parties differing from habitual ways of their usual interspecies communication. As both humans and animals are influenced by the presence of other members of their species, it is to be assumed that the social framework to an interaction influences the ability to engage in an in-depth interspecies encounter. Humans, in particular, who are bound by a complex system of socially expected behavior, find it difficult to vary from their species-specific behavior patterns enough to either favor the interspecies communication or be able to uphold a lower level of communication in the presence of members of their own species.

As part of my research, I have conducted a laboratory-based human-animal-interaction study in cooperation with the department for dog studies at the Max-Planck-Institute for the Science of Human History in Jena, analyzing the interaction process between owners and their dogs while fulfilling predefined tasks as well as collecting additional interview material. Combining the study with recent human-animal-interaction theories shows a variety of influential factors as well as a clear change in the level of the interaction based on individual, social and environmental factors. Consequently, this study implies that general limits of interspecies communication –mostly attributed to the predefined species difference of the communication partners – can only be assumed situationally and heavily depend on the individual participating in the relevant interaction as well as the framing.

Understanding the Nature of Research Undertaken by Prospective Dog Owners

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Introduction: Little is known about whether potential owners undertake preparatory research, what advice they look for, or where they look for information, prior to acquiring a dog. There is an urgent need to understand this process so that strategies can be developed to promote responsible acquisition behaviours.

Methodology: A 2019 online survey of current (n=8,050) and potential (n=2,884) dog owners collected quantitative and qualitative data. Additional qualitative data were collected through semi-structured interviews with a total of 28 current and potential owners. Quantitative data were analysed using IBM SPSS (v.26) and R (v.3.6.1). Transcribed interviews were coded in NVivo (v.12) utilising inductive thematic analysis.

Main findings: Of the current owners surveyed, just over half stated retrospectively that they had looked for advice or information prior to acquiring their dog (54%, 95% CI [53%, 56%]). Two-thirds of potential owners reported already having looked for information (68%, [66%, 69%]) and a further 14% [12%, 15%] were planning to undertake research. Websites were the most common source of information with three-quarters of current owners citing their use (76% [75%, 77%]). Other popular sources were family/friends (65%, [63%, 66%]), online forums (51%, [50%, 53%]) and books (37%, [36%, 39%]). Similar trends were seen among potential owners. Qualitative data revealed that information was commonly sought about diet, exercise, health, and training. A number of respondents wanted to know how to find responsible breeders. Some found conflicting advice from different sources and did not know which sources to trust.

Principle conclusions and implications for field: For many potential owners, research into various aspects of dog acquisition and ownership is important. Knowing where to look for correct and unbiased advice, particularly online, is of key importance. Findings may be of interest to organisations involved in pet welfare, especially those who provide advice related to dog acquisition.

Walking the Dog: Frequency and Duration of Owner Reported Exercise in a Cohort Study of Dogs

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Introduction: Regular walking has welfare and health benefits for dogs and owners. Insufficient exercise may contribute to a range of behavioural/health issues. There are limited data on what is 'normal' walking practice and how this changes with dog age. This study summarises walk frequency and duration for dogs participating in an ongoing longitudinal study, before UK COVID-19-lockdown restrictions began (23/03/2020).

Methodology: Prospective categorical data relating to walk (on- and/or off-lead) frequency and duration were collected in owner-reported surveys of dogs at age 16-weeks and 9-months. Data were explored using descriptive statistics and Stuart-Maxwell tests used to assess changes between time-points.

Main results: Excluding 13 dogs who were not walked on either/both an average weekday/weekend day, data were available at both time-points for 1068 dogs.

The most commonly reported walk frequency was twice a day; 44.6% (n=476) and 46.1% (n=492) on an average weekday, and 47.3% (n=505) and 46.6% (n=498) on an average weekend day, at 16-weeks and 9-months, respectively. Walk frequency on an average weekend day (but not on an average weekday) was significantly higher at 16-weeks than at 9-months ($\chi^2=15.862, df=4, p \leq 0.003$).

Total daily walk duration was significantly longer for dogs at 9-months than at 16-weeks on both an average weekday ($\chi^2=501.21, df=16, p < 0.001$) and average weekend day ($\chi^2=419.33, df=16, p < 0.001$). At 16-weeks, most puppies were walked for 30-minutes on an average weekday (26.8%, n=286) and on an average weekend day (22.2%, n=237). Whereas, at 9-months, most dogs were walked for 1-hour on an average weekday (22.8%, n=243) and for 2-hours on an average weekend day (20.0%, n=214).

Principal conclusions: Owners reported significantly longer walks on average weekend days and as dogs aged walk duration increased. Future research will explore factors influencing exercise amount (e.g. breed) and how exercise impacts on various behaviour/health outcomes, controlling for confounders.

Cortisol Coregulation Between Dogs and Owners in One- But Not in Two-Dog Households

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Introduction: Human dyads with strong relationships are known to bidirectionally modulate each other's physiological stress levels, known as 'cortisol coregulation'. Very few studies, however, have tested whether cortisol coregulation also occurs in interspecific dyads that form attachment bonds (i.e. dogs and owners) and factors that influence it. Through analysis of hair cortisol concentrations (HCC), this study investigated the effect of social context (one- versus two-dog households) on long-term cortisol coregulation between dogs (*Canis familiaris*) and owners, predicting stronger coregulation in one-dog households.

Methodology: Hair samples were collected from dogs (n=40) and owners (n=31) in one-dog (n=14) and two-dog (n=13) households. Hair samples were collected from each individual on two occasions (total n=135 samples). HCC were determined by enzyme immunoassay. Data were analysed in R, using linear mixed models (LMM).

Main Results: Dog and owner HCC were significantly positively correlated in one-dog households (LMM: estimate = 2.95, SE = 1.40, $t = 2.11$, $p = 0.046$) but not in two-dog households (LMM: estimate = -0.39, SE = 1.19, $t = -0.33$, $p = 0.746$).

Principle Conclusions and Implications for Field: The presence of dog-owner cortisol coregulation in one- but not in two-dog households suggests stronger dog-owner attachment when no other conspecific is present. Overall, our findings further our knowledge of interspecific physiological stress modulation and highlight the importance of social context – here the presence of a conspecific – when studying interspecific cortisol coregulation. Physiological coregulation with owners could have important implications for understanding and assessing companion dog welfare and future research should explore the function and development of coregulation in dog-owner dyads.

“He Was Like, My Ride or Die”: Sexual and Gender Minority Emerging Adults’ Perspectives on Living with Pets During the Transition to Adulthood

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Introduction: This qualitative study explores themes in sexual and gender minority (SGM; e.g. lesbian, gay, transgender, nonbinary, queer, genderqueer) emerging adults’ experiences of living with pets to identify population-specific benefits and risks associated with living with pets during the transition to adulthood. Our study was guided by two research questions: 1) in what ways does living with a pet support wellbeing among SGM emerging adults? and 2) in what ways does living with a pet pose risks to wellbeing among SGM emerging adults?

Methodology: Participants were recruited through five local community organizations. We conducted semi-structured interviews with 117 SGM emerging adults ($M_{age}=19.32$; 37% racial/ethnic minority; 49.6% gender minority; 98.3% sexual minority) who lived with a pet within the past year. Transcripts were analyzed in ATLAS.ti (Version 7) using the process of template analysis. Each transcript was coded by two coders (Krippendorph’s $\alpha = .81$) using a template of 54 codes. An inductive analysis approach was used to identify themes.

Main Findings: We found five themes that reflected benefits of living with pets (percentage of participants who experienced each): pets as a buffer to general stress (98.92%) and specific SGM stressors (e.g. discrimination, victimization; 73.50%), pets as a coping mechanism for mental health (41.88%), pets as purpose (58.97%), pets as identity (39.32%), and pets as social capital (65.81%). Three themes emerged in relation to stressors associated with living with pets: caregiver burden (63.24%), animal-related psychological stress (52.13%), and pets as barriers to relationships (24.79%).

Principal Conclusions/Implications: Pets may provide unique support to SGM emerging adults experiencing minority stressors. These results suggest a need for future research to quantitatively investigate mechanisms through which pets may promote wellbeing in SGM emerging adult populations. Further, our findings regarding stressors associated with pet ownership may have important implications for vulnerable pet-owning populations.

It's a Match! Which Cat and Owner Personality Trait Combinations Correlate with the Highest Owner-Cat Attachments?

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Introduction: Human to animal attachment bonds have been linked to various psychological benefits combating loneliness and improving mental well-being. Using cats as the companion animal of interest, this study explored which cat and owner personality traits, and combination of traits best predicted owner to cat attachments (OCA). Building on research by Evans *et al.* (2019). Further exploratory analyses evaluated how cat living status impacted on these measures, comparing exclusively indoor cats to those allowed outside.

Methodology: Cat owners ($n=2027$) were recruited online using a survey circulated on cat-related Facebook groups. The measures presented included a measure of cat personality, a measure of human personality and the Lexington attachment to pets scale.

Main findings: Cat agreeableness and extraversion were the strongest predictors of OCA ($\beta = -2.1, p < .001$; $\beta = -1.68, p < 0.001$). Furthermore, combinations which saw matched levels of owner impulsiveness to cat dominance OR similar levels of owner dominance to cat agreeableness predicted higher OCA. Lastly, differences were identified in cat personality when comparing living status. Indoor cats were significantly more likely to be rated as dominant compared to outdoor cats (Unpaired t-test $t=4.60, p < 0.001$). Outdoor cats were seen as significantly more extraverted and agreeable compared to indoor cats (Unpaired t-test $t=-5.54, p < 0.001$; $t=-3.28, p < 0.001$).

Principle conclusions and implications for field: Research has suggested that individuals adopt cats based on coat colour. Personality compatibility may be a future method to better match potential cat owners, leading to greater OCA and hence positive psychological impacts. Future research is currently taking place using a structural equation model to better understand the predictability of personality traits on OCA.

References:

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Australian Veterinary Industry's Attitude Toward Fear-Free Veterinary Care for Companion Dogs

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Introduction: The 'fear-free veterinary clinic' is a movement aimed at making veterinary clinics less stressful for dogs. Yet, little is known about the attitudes of veterinary industry professionals toward its use and feasibility of implementation. This study aimed to investigate the attitudes of the Australian veterinary industry toward fear-free veterinary care, including prevalence of any fear-free certification, and the relationship between attitudes to animals and fear-free practice.

Methodology: Using an online survey, we asked 291 (91.1% female, median age 34yo (17-70yo)) veterinary industry professionals (e.g. veterinary nurses, veterinarians) about their attitudes toward fear-free veterinary care, its use, and animals. Chi-squared tests and Mann-Whitney U Tests were conducted in investigating the relationships between certification and attitudes toward fear-free veterinary care, and fear-free veterinary care and attitudes to animals.

Main results: Approximately one fifth of respondents (56/291) personally had completed a fear-free certification. Veterinary industry professionals (e.g. veterinarians, veterinary nurses, managers) with fear-free certification reported a higher frequency of using fear-free practices and the clinical ability/resources to use fear-free practices in comparison to those without a certification (Mann Whitney U-test, $p = 0.005$ and 0.010 respectively). Attitude to animals scores were higher if they were female ($p < 0.000$), not a veterinarian ($p = 0.037$), and believed fear-free veterinary care was important ($p = 0.002$).

Principal conclusions and implications for the field: Fear-free veterinary practice is important to Australian veterinary industry professionals, although approximately only one fifth of industry professionals hold a fear-free certification. Those with fear-free certifications reported a higher frequency of use, and perceived ability to implement, fear-free practices within the veterinary clinic than those without. Veterinary professional certifications in fear-free veterinary care may contribute to the continual improvement of animal welfare within the Australian veterinary industry.

Children's Pets and Non-Pets

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Introduction: Not all pets are equal. This holds true especially when it comes to their relations with children. The category of “pet” embraces a wide variety of animals. The way children relate and categorize animals within their household can vary widely depending on their shared practices. This paper reviews exploratory findings related to children’s categorization of animals in the household through their practices, and how this can be impactful for the animal’s welfare.

Methodology: Our findings derive from research collected in the project CLAN and my ongoing PhD project. From a sample of 24 families, we did in-depth interviews to parents and children alike. The children interviewed were aged between 8 and 14 years old. The interviews were focused on the relationship between the children and their pets.

Results: Our introductory findings point towards the salience of play, and most importantly, touch in the establishment of a relationship with a pet that children deem significant. In the interviews, children often forgot to mention less interactive animals, such as fish. These animals were often forgotten in the background, especially if there was other, more interactive, animal around. While cats and dogs were frequently mentioned as persons and even family members, the inability of certain animals to play and be touched was underlined as a reason for them to not even be considered pets, for they could not be “petted”. These animals were less cared for and interacted with.

Principal conclusions: Play and physical proximity hold an important role in the development of a close relationship between child and pet, this has implications in the construction of vulnerability of certain species in their relations with children. Implications for education include exploring how play can be reinvented regarding children’s interactions with other species besides cats and dogs.

Working with My Four-Legged Best Friend – the Effects of the Relationship to a Therapy-Dog on Professionals

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Introduction: Animal Assisted Interventions (AAI) aim to increase the well-being of individuals, as well as to reduce stress. In this context, numerous studies underline the positive impact of AAI on human stress management. Nevertheless, one aspect which has not yet received much attention is the question of how the relationship with a therapy animal not only affects patients/clients but professionals who work with the them. For this reason, the aim of the present study was to examine whether the specific bond between professionals and their therapy dogs affects the professionals' stress management.

Methodology: Professionals who work in the fields of psychology, psychotherapy or pedagogy were surveyed online using the Lexington Attachment to Pets Scale, the Sense of Coherence Scale, the Stress Processing Questionnaire and the Resilience Scale. A total of 110 professionals took part and were divided into three groups (current dog owners working with a dog, current dog owners not working with a dog and non-dog owners). Statistical analysis included t-tests, correlations and Cohens *d* as effect size measure.

Main results: Results show significant correlations between the strength of the human-dog bond and positive stress processing strategies ($r(80)=.265, p=.018$). Moreover, data demonstrates significant differences between professionals working with a dog and professionals not working with a dog but have one in regards to the strength of the sense of coherence ($F(2,62.97)=3.19, p=.048$). No significant correlation was found in regards to the professionals' relationship with a dog and resilience.

Principal conclusions and implications for the field: Based on the results of the present study, it might be assumed that the special relationship between humans and animals in therapy dog teams has a positive influence on the professionals' stress management, as well as on their strength of coherence and associated resources.

Inequities in Access to Veterinary Care

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Introduction: Community-based veterinary medicine focuses on creating accessible veterinary care for underserved communities to address systemic and historical disparities. However, there is a need for research exploring what specific factors contribute to inequity in access to veterinary care in order to inform evidence-based practice. This research evaluated a nationally representative survey of pet owners in order to understand ease of access to veterinary care and factors that may make accessing veterinary care more difficult.

Methodology: Data for this study were derived from a larger nationally-representative survey of adults in the United States from the Tufts Equity Research Group. Participants for this survey study ($n=1,267$) were recruited using the IPSOS market research company. The questionnaire was sent electronically to participants and asked a range of demographic questions as well as how easily participants could access veterinary care in their community. Participants ranged in age from 18 to 94 years ($M=48$ years); 800 (63.1%) identified as white/non-Hispanic, 150 (11.8%) as Black/non-Hispanic, 208 (16.4%) as Hispanic, 109 (8.6%) as other/non-Hispanic.

Main Results: Of 1,267 respondents, 750 (59.2%) participants owned at least one animal. Participants were asked how strongly they agreed/disagreed with the statement 'I can easily access veterinary care for my pet in my community': 364 (51.9%) participants strongly agreed, 215 (30.7%) agreed, 63 (9.0%) were neutral, 21 (3.0%) disagreed, 15 (2.1%) strongly disagreed, and 22 (3.2%) participants did not know. ANOVA results indicated a significant difference between racial/ethnic groups regarding perceived access to veterinary care [$F(4, 673)=10.94, p<.001$]. Participants utilizing government assistance programs also had more difficulty accessing veterinary care.

Principal Conclusions and Implications for Field: Results suggest that ease of access to veterinary services may vary among pet owners. These findings may inform community-based veterinary medicine programs how to remove systemic barriers to care.

Pet Care in SHARE: Issues Encountered by Professionals Working with Families Living with Dementia

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Introduction: The relationship with a pet remains important for individuals living with dementia; however, pet-related issues are often overlooked in interventions designed for this population. The aim of this project was to uncover pet care and other pet-related issues identified by professionals working with people living with dementia and their family members.

Methodology: SHARE for Dementia is an evidence-based, care-planning intervention that provides professionals with the tools to help early-stage families make critical care-related decisions. SHARE Counselors were invited to complete a survey about issues stemming from pet ownership they had encountered in both their SHARE and non-SHARE experiences working with families living with dementia. The analysis consisted of descriptive statistics.

Main results/findings: Four counselors completed the survey (25% response rate). Respondents estimated an average of 25% (range: 10% - 37%) of clients had pets in the home (e.g., cats, dogs, birds) all reported encountering issues related to pet ownership. The most commonly-encountered issues were basic pet care ($n=3$) and concern about falling due to a pet ($n=3$). There was variation in who had brought up these issues. Basic pet care had been mentioned by the caregiver ($n=1$), both the person with dementia and the caregiver ($n=2$), and the counselor had recognized it as an issue without it being previously mentioned ($n=2$). Concerns about falling had only been brought up by caregivers ($n=3$) or by the counselor ($n=3$).

Principal conclusions and implications for the field: Despite the limited sample, results suggest that professionals do encounter pet-related issues and their salience varies between stakeholders. Engaging professionals can be an important way to more fully understand how pets influence health and well-being. Addressing these issues within the scope of existing evidence-based programs such as SHARE is likely to provide important insight into the needs of families living with dementia, including pets.

Investigating the Role of Facebook Groups about Pets on the Mental Health and Well-being of Filipinos

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Introduction: Social media sites like Facebook have many uses, including the formation of user groups with the main purpose of gathering people with similar interests and preferences. An example is groups for pets like dogs and cats. Members often share photos and videos of their pets accompanied by various stories and narratives. Other members also interact in the group by reacting to and sharing photos, as well as sharing similar experiences in the comments section. This paper then investigates the role of Facebook groups about pets on the mental health and well-being of Filipino group members.

Methodology: Filipino respondents (n=98) who are members of different Facebook groups for pets were invited to complete the online questionnaire developed by the researcher. Thematic analysis was used to examine the common themes present in the data.

Main Findings: Thematic analysis revealed five important themes on the role of Facebook groups about pets on the mental health and well-being of Filipino group members. These are 1.) mental health and well-being, 2.) human-animal bond and interaction, 3.) network, 4.) give and receive information, and 5.) animal welfare. Sharing and interacting in the group are means to increase and enhance positive emotions, and to manage the negative emotions or cope with the negative experiences.

Principal Conclusions and Implications for Field: These findings suggest that social media platforms like Facebook groups about pets serve as a unique medium that may help maintain and enhance the mental health and well-being of Filipino members by sharing different media and stories of their pets, as well as in interacting with the posts found in these groups. At the same time, different aspects of human-animal interaction can be further explored in future studies through this medium especially during the time where face-to-face interactions are limited due to the pandemic.

The Impact of Chronic Enteropathy on Dog Quality of Life, Dog Behaviour and Guardian Relationship Towards Their Dog

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Chronic enteropathy is a gastrointestinal disease with a symptomatology lasting at least three weeks. The aims of this study were to evaluate the impact of chronic enteropathy on the quality of life (QoL) and the behaviour of dogs, as well as on the relationship of guardians towards their dogs.

Forty-four dogs with primary chronic enteropathy were enrolled. QoL was assessed using a 10-point visual scale; severity was assessed through the Canine Chronic Enteropathy Clinical Activity Index (CCECAI) score; behaviour using the Canine Behavioral Assessment and Research Questionnaire (C-BARQ); and owner-dog relationship using the Lexington Attachment to Pet Scale (LAPS). Measurements were taken at the first visit and again at clinical follow up. A control group of 49 healthy dogs was also recruited. Scores were compared using the Wilcoxon test and correlations were evaluated using Spearman's test ($p < 0.05$).

QoL of dogs with enteropathy was lower than for healthy ones (8.1 versus 8.8; $p = 0.026$). A negative correlation between QoL and severity of enteropathy was found; at follow up, an improvement in QoL was positively correlated with an improvement in the pathology severity ($p < 0.001$). The LAPS revealed a higher attachment score towards dogs with enteropathy compared to the healthy ones (59.7 versus 57.3; $p = 0.034$); at follow up, dogs whose enteropathy was not completely resolved had guardians with a higher LAPS score compared to respondents to therapy (63.8 versus 60.0; $p = 0.013$). C-BARQ revealed higher scores at the first examination than at the follow up for separation-related behaviours ($p = 0.024$) and contact/attention seeking behaviour ($p = 0.002$).

Chronic enteropathies were found to have a remarkable impact on the dog QoL; in addition, such illness seems to have an impact on the behaviour of dogs, that increase their seeking for the guardian, the latter showing higher levels of attachment towards an ill dog.

Meaning in Human-Horse Relationships

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Introduction: The meaning of horses to humanity has been explored in science and art for centuries. But how do ordinary horse-owners make meaning in their human-horse relationships?

Methodology: Material was collected by 10-item measure (MLQ, Steger et al. 2006) and one open-ended question (“Please describe briefly, what does your work or pastime with horses mean to you”) from 21 horse owners (8 in a box, 13 in paddock environment) participating in a study exploring horse personality (pre+post, 12 months). The individual scores of the MLQ were obtained by averaging the scores after transposing the reverse questions. Answers to the open-ended questions were analyzed with grounded theory informed qualitative content analysis.

Main findings: Statistical analysis showed, that the MLQ score varied between individuals, but not between the two questionnaire rounds ($X_{1st} = 4.29$, $SD=0.97$; $X_{2nd} = 4.37$, $SD = 0.87$; Wilcoxon signed-ranks test for paired samples $N=12$, $W=45,5$, $p=0.266$). The scores weren't predicted by the stable type: GLMs of meaning-scores as the dependent variable, pre-existing knowledge (no / some / advanced knowledge) as the predictor $F=0.23$, $p=0.13$; the main training method (positive reinforcement/ mixed methods/ traditional methods) as a predictor. $F=0.117$, $p=0.89$; stable type (field paddock/ box) as the predictor, $F=3,53$, $p=0.08$, however the trend was due to an extreme outlier.

In contrast, qualitative analysis revealed two differing foci in the meaning given to horse-human relationship: 1) self-fulfillment of the human and 2) agency of the horse. All the mentions of connectedness as the imperative factor were found with owners of horses in a paddock environment.

Principal conclusions and implications for the field: Results suggest that the type of meaning in the human-horse relationship could be connected to the horse living conditions. Further longitudinal and intervention studies are needed to investigate this connection – and to clarify its implications to animal well-being.

Efficacy of Animal Assisted Interventions

Physical Touch and Anxiety in Adolescent Interactions with Therapy Dogs

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Introduction: Animal-assisted interventions (AAIs) are increasingly popular as an approach for anxiety reduction, but there is still a significant need for research on the mechanisms involved in these interventions to optimize design. Given that AAIs frequently involve physical contact with a therapy animal, one possible mechanism for anxiety reduction is physical touch. This study aimed to use existing video data from a larger study on AAIs in youth with social anxiety to explore if frequency of touching a therapy dog was related to self-reported anxiety during a stressor.

Methodology: Video data from 20 adolescents (ages 13-17) were collected as part of a larger laboratory-based study on AAI and anxiety reduction. Adolescents were exposed to a social stressor in the presence of a trained therapy dog. Videos were coded for frequency of youth touching the therapy dog during the stressor. Participants also self-reported anxiety during the stressor using the State-Trait Anxiety Inventory (short version).

Main Results: Preliminary coding results indicated that participants touched the therapy dog an average of 17.8 times (SD=12.0; range 5-53) during the experiment. There was a moderate negative correlation between frequency of touching the dog and self-reported anxiety increase from baseline to the stressor task ($r=-0.47$, $p=0.038$).

Principal Conclusions and Implications for Field: These preliminary results suggest that physical touch of a therapy dog may be an important behavior to explore in the context of AAIs for youth with anxiety. These findings indicate that further exploration of the variability of youth-therapy dog interactions and anxiety responses is necessary for fully understanding the role of AAI in anxiety reduction. Future research should align behavioral coding with self-report and physiological measures of anxiety reduction in order to explore individual differences in responses to contact with a therapy dog and how participant and dog behaviors may relate to positive outcomes.

The Effects of Service Dogs for Children with Autism Spectrum Disorder and Their Caregivers

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Introduction: Autism service dogs are an increasingly popular complementary intervention for children with autism spectrum disorder (ASD). Preliminary research suggests that service dogs may reduce children's ASD symptomology and physiological arousal as well as caregiver burden and worry. However, there remains a lack of empirical research in this area. Our objective was to quantify the effects of autism service dogs on child, caregiver, and family functioning.

Methodology: Families were recruited from a single non-profit service dog organization. Participants consisted of children and adolescents ages 4-17 with an ASD diagnosis as well as their legal caregiver. Using a cross-sectional design, we recruited families who had received an autism service dog (treatment group) and families on the waitlist (control group). Caregivers completed an online survey containing a series of standardized measures. Data was analyzed with hierarchical multiple linear regression models controlling for child- or caregiver-specific covariates.

Main Results/Findings: Data collection is ongoing and will terminate in April 2020. Preliminary analyses were conducted among $N=62$ families (30 with a service dog, 32 on the waitlist) who had completed the study by January 2020. Preliminary results indicate a significant relationship between having a service dog and better child sleep, including better sleep initiation and duration and less sleep anxiety/co-sleeping. However, preliminary analyses do not indicate a relationship between having a service dog and child functioning (ASD symptoms, problematic behaviors, social behavior), caregiver functioning (parenting strain, sleep disturbance, depression), or family functioning (communication, daily activities).

Principal conclusions and implications for the field: This research provides a preliminary exploration of the effects of autism service dogs on both the child and family unit. Preliminary results suggest potential benefits to child's sleep, but minimal benefits to child behavior and caregiver and family functioning. However, results from the full sample size will be more definitive.

Therapeutic Interactions in Equine Assisted Psychotherapy for Veterans with PTSD

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Introduction: Research into animal assisted psychotherapy is comparatively recent, and on use of equines even more recent. This study evaluated effectiveness of EAP for treatment of PTSD in Military Veterans.

Methodology: This presentation reviews three main theoretical perspectives and reports research into use of EAP for PTSD. Participants, military veterans suffering PTSD, engaged in 10, weekly, EAP sessions. The Positive and Negative Affect Scale (PNAS; Watson et al., 1988), Rosenberg Self-esteem Scale (Rosenberg, 1965), and Post-Traumatic Stress Disorder Checklist (PCL-5; Weathers et al., 2013), were administered pre-EAP, post-EAP, and at follow-up. Participants were interviewed on completion of EAP and at six-month follow-up.

Main results/findings: Due to attrition, only two participants completed all measures. Analysis therefore became case-study format. Both participants showed improvements in all pre- versus post-session measures; improvements were maintained at six-month follow-up. In interviews post-EAP, participants stated that experiences had been very positive, noting the reflective nature of the therapy, feelings of "grounding", and increased sense of calm afterward. Social interaction improvements were also reported outcomes.

Principal conclusions and implications for the field: Results showed EAP as effective in treatment of PTSD for Military Veterans and that specific qualities of the horse aid in the healing process. Therapy in more open areas, involving a non-judgmental, reflective partner, appears to give a more effective situation for expression of emotions in this population.

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Canine-Assisted Occupational Therapy for Children on the Autism Spectrum

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Introduction: Occupational therapists have incorporated dogs into professional practice for different populations. This study aimed to present objectives, activities and strategies of an occupational canine assisted therapy for a child on the autism spectrum, in the Brazilian context, but aligned with international recommendations.

Methodology: Instrumental case study with qualitative approach. The participant was a 6-year-old male child on the autism spectrum. The instruments for data collection were Canadian Occupational Performance Measure, answered by the parents, and a Checklist, created by the researcher, used to observe and record components of the child's performance and engagement and behavior in activities, and in relation to the therapy dog. These instruments were applied to define the goals, activities and to accompany the child in the sessions.

Main Results: The incorporation of the therapy dog in the proposed activities made it possible for the child's actions to be guided by an intrinsic motivation, increasing the frequency in the demonstration of attention, interest, persistence, communication with the dog, approach and time near the dog. Strategies such as structuring activities in stages and incorporating the therapy dog in the last stage of the activity enabled the activities to be successfully carried out.

Principal conclusions and implications for the field: The results of this study can constitute suggestions of activities and strategies that can be adopted by the therapist to incorporate the therapy dog into sessions and promote the development or improvement of performance and engagement components, as well as the improvement of the child's social and emotional behaviors. As a result, it can subsidize the practice of the occupational therapist in the field of interventions assisted by dogs and future studies in the reapplication of activities and strategies in a greater number of children on autism spectrum or another population.

A Review of Meta-Analyses for the Effectiveness of Animal-Assisted Therapy on Mental Health

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Introduction: Animal-assisted therapy (AAT) is an intervention where animals are incorporated into the treatment of individuals in order to achieve pre-determined therapeutic gains. Although AAT is growing in prominence, the strength of the evidence base is fairly weak due to inconsistent findings, small sample sizes, and other methodological limitations. One statistical solution to achieve more precise estimates is through the use of meta-analytic techniques. Accordingly, the aim of this research was to perform a review of previously conducted meta-analyses examining the effectiveness of AAT on mental health outcomes.

Methodology: This review included any publication, in the English language, which conducted a meta-analysis for the effectiveness of AAT on any mental health outcome among humans. Key extracted information from the meta-analyses included eligibility criteria, number of studies, and key findings / effect sizes.

Main Findings: Findings from twelve meta-analyses generally provided support for the efficacy of AAT for a range of outcomes including depression, anxiety, emotional wellbeing, behavioural disturbances, pain, and distress. However, a range of limitations and shortfalls for these meta-analyses were observed. Key limitations included combining AAT & animal-assisted activity (AAA) studies within the same meta-analysis; variations in scope; lack of subgroup analyses; and lack of adherence to reporting guidelines.

Principal Conclusions and Implications for Field: Meta-analyses have the potential to yield precise estimates of an intervention, however our review has outlined a range of methodological limitations which may limit confidence in the findings. Suggestions for future meta-analyses of AAT and mental health include: treating different interventions (e.g. AAT & AAA) separately; carefully considering the application of eligibility criteria for subsequent impacts on estimates; and adhering to standard reporting guidelines / pre-registering where possible.

Evaluation of a Prison-based Dog Program to Improve Social and Emotional Skills of Prisoners

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Introduction: Conventional therapeutic programs in correctional facilities are challenged by a difficult clientele with low social skills and comorbid mental disorders. Prison-based dog programs (PBDP) are increasingly used to increase socio-emotional skills but research is still scarce. In this study, we evaluate a six-month group PBDP in two institutions in Germany aiming at improving emotional and social skills.

Methodology: Sixty-two male prisoners participated in the study. Thirty-three participants received a PBDP for six months, while the control group (N=29) received standard treatment. Before starting, after six months and at a four-month follow-up, the participants and their psychologists completed the emotional competence questionnaire (EKF) and the inventory of social competencies (ISK-360°).

Main findings: Both groups showed an increase in general emotional competence (self-rating) and general social skills (external assessment) after six-months and at follow-up. The psychologists rated the social self-control higher in the intervention group (estimate=0.43, CI:0.10-0.76, p=.014) compared to the control group. We also found a tendency for higher social skills in general (estimate=0.23, CI:-0.02-0.49, p=.082), social orientation (estimate=0.37, CI:0.02-0.73, p=.051), and emotion regulation (estimate=0.42, CI:-0.01-0.85, p=.060) in the intervention group. The participants' assessment did not differ between the intervention and the control group.

Principal conclusions: The study reveals that psychologists experienced a significant increase in social self-control while emotion regulation, social skills in general, and social orientation only tended to be higher in prisoners who participated in the PBDP. The prisoners' self-assessment did not differ. Our results are in line with the meta-analysis of Duindam et al. (2020) indicating that PBDPs can improve socio-emotional functioning and concluding that future research should investigate for whom such programs are particularly suitable.

Duindam, H.M., Asscher, J.J., Hove, M., Stams, G.J.J.M., & Creemers, H.E. (2020). Are We Barking Up the Right Tree? A Meta-Analysis on the Effectiveness of Prison-Based Dog Programs. *Criminal Justice and Behavior*, 47(6), 749–767.
<https://doi.org/10.1177/0093854820909875>

Agitation During Dog and Robot Group Sessions for Nursing Home Residents with Dementia

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Introduction: Agitation behaviors of people with dementia have a high impact in nursing homes. Animal assisted interventions are considered as a suitable intervention for agitation due to the inherent nature of the human-animal bond and the overlap with psychosocial theories used to explain agitation. In this study we observed agitation behaviors during group sessions of psychogeriatric nursing home residents with either a dog or robot and a comparison control group.

Methodology: Nursing home residents with dementia ($n=66$) were randomized in three groups for weekly visits by either a dog and handler ($n = 22$), a robot and handler ($n = 24$) and a handler only control group ($n = 20$). Video-observations were used to quantify agitation behaviors during the first session via a codebook based on the Cohen-Mansfield Agitation Inventory (CMAI) and the proximity of the stimulus in relation to the participant. Individual CMAI scores were also monitored during the entire 8-week study period as well as changes in medication usage.

Main Results: All observed agitation behaviors significantly drop to zero when the participants in the dog group directly interact with the dog ($p = .028$, $d = 0.57$). In the robot and control group the decrease in agitation is not significant. Medication usage and CMAI scores of participants do not differ between the three groups and do not change over time. Baseline CMAI scores are not correlated to the observed effect ($r = .091$, $p = .576$).

Principal Conclusions and Implications for Field: Dog interactions are a suitable intervention to decrease agitation behaviors in a specific moment. We were not able to measure a long-term effect beyond the intervention. Temporarily decreasing agitation behaviors in people with dementia via dog interactions, however, is a valuable outcome for nursing home staff in and of itself.

A Systematic Review of Childhood Trauma and the Effects of Canine Animal-Assisted Interventions

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Background literature: Childhood trauma is defined by the National Child Traumatic Stress Network as ‘a frightening, dangerous, or violent event that poses a threat to a child’s life or bodily integrity’ (NCTSN, 2020). Traumatic stress can give rise to physical and psychiatric diseases (Cohen *et al.*, 1995). Animal-Assisted Interventions have been proposed to mitigate the long-term health effects of childhood trauma experienced that can continue into adulthood (O’Haire, 2015).

Research Aim: The aim of the present literature review was to assess the evidence in relation to Animal-Assisted Interventions with dogs on the effects of childhood trauma.
Method: PRISMA guidelines were followed to perform the present systematic literature review i.e. the preferred reporting items for systematic reviews and meta-analyses. Search strategies included ‘childhood’, ‘adolescent’, ‘trauma’, ‘animal-assisted’ and ‘pets’ using the research database EBSCO to identify the relevant peer-reviewed publications.

Results: Records identified 1,370 research articles, of which 233 were duplicates. Of the remaining 1,137 articles, 1,080 were excluded. Fifty-seven full-text articles were assessed for eligibility and 9 studies were included in a full review of AAI characteristics employed, study design and outcome(s).

Conclusion(s): AAI’s with canines have demonstrated promise to support the prevention, treatment, and recovery from the after effects of trauma exposure in children. Further research needs to be conducted to evaluate the specific components of intervention(s) that are considered most adaptive from an evidence-based perspective in order to promote the best care pathway and therapeutic intervention for victims of childhood traumatic stress to benefit children and adults worldwide.

Effect of Equine Assisted Learning (EAL) Course on the Mental Health of Medical Students and Resident Physicians

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Introduction: The mental health of medical students, residents and physicians is a growing area of concern. Equine Assisted Learning (EAL) has been suggested as one possible method of addressing mental health concerns of at-risk populations (Pendry et al 2018). In this paper, we describe effects a novel EAL curriculum on medical student and resident physician mental health outcomes.

Methodology: Using a nonrandomized control group pretest-posttest design, we compared responses of medical students and residents enrolled in a novel EAL program ($n=18$) with a matched control group ($n=10$) before and after the program. Outcomes variables included depression, anxiety, burnout and well-being. Analysis of covariance (ANCOVA) was used to compare cohorts.

Main Results: Analysis showed that ‘personal achievement’ dimension of burnout improved after taking the EAL course ($\beta = 3.74$, $p = 0.03$). There was also a tendency for well-being to improve ($\beta = 0.90$, $p = 0.08$). No other effects were detected for anxiety, depression, or other dimensions of burnout (i.e. ‘emotional exhaustion’ and ‘depersonalization’). Future research should explore other possible beneficial effects.

Principal Conclusions and Implications for Field: These findings indicate EAL may have some mental health benefits in terms of burnout and well-being for medical students and resident physicians; however, further research using larger samples is needed.

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The Guidelines and Policies That Influence the Conduct of Animal-Assisted Activities in Residential Aged-Care Facilities: A Systematic Integrative Review

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Introduction: For some time, Residential Aged-Care Facilities have incorporated animals into their environment to relieve loneliness and isolation for aged-care residents. However, research examining this practice is not as developed. This paper aims to identify the policies and practices influencing the conduct of Animal-Assisted Activities (AAA) in Residential Aged-Care Facilities (RACF) focusing on the Australian context.

Methods: Peer-reviewed and grey literature were searched using an array of databases including CINAHL; Embase; Medline; Pubmed; Scopus and Web of Science; Google Scholar; PROSPERO, Proquest Dissertations; Theses Global; Animal Studies Repository; Medicine and Health Science Commons; Open Gray and a targeted Google search for relevant Australian Guidelines. Database searches had no time limits. Nine documents published between 1990 and 2018 were identified, appraised and subsequently included in the analysis.

Results: The requirement for effective AAA policies for RACF staff continues to be an area of need. Facilities have not developed core policies; instead, there appears to be a shift toward reliance on AAA providers ensuring resident safety. Animal welfare, again relying on AAA providers, is also identified as an emerging area, warranting further action and policy development.

Conclusion: Over the last 30 years, the development of policies guiding the provision of animal activities within RACF has been inconsistent in both content and application, including the implementation of basic hygiene policies. If the international situation is indicative, further work is needed in Australia to develop and enforce infection control, risk management and animal welfare policies in RACF's and AAA organizations.

Integrating Facility Dogs into Therapeutic and Legal Contexts for Survivors of Sexual and Family Violence: Opportunities and Challenges

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Introduction: Giving evidence in court can be stressful, especially for child survivors of sexual and/or family violence (SFV). Since increased anxiety is associated with an increased likelihood of changing testimony, reducing witness anxiety may improve the quality of evidence. Dogs are increasingly used in legal settings (e.g., courtrooms) to comfort vulnerable witnesses. Preliminary evidence supports their use, but legal professionals sometimes oppose their integration into court. The aim of this qualitative, exploratory study was to characterise the benefits and challenges associated with employing dogs in legal settings for SFV survivors.

Methodology: Zoom interviews were conducted with 11 professionals (9 women) in North America working with facility dogs in legal settings. A deductive content analysis was used to divide data into themes.

Main Results: Participants reported benefits of facility dogs for SFV survivors, indicating that survivors felt more comfortable opening up about their experiences, remaining calm enough to give reliable evidence. Several participants highlighted that giving this evidence led to successful prosecutions. Participants also indicated that staff (e.g. investigators, prosecuting and defense attorneys) morale improved. Identified challenges included logistical (e.g., managing staff with dog allergies) and structural (e.g., lack of support from other legal professionals) issues. Over time, participants noted that defense attorneys demonstrated less resistance to the use of dogs in the courtroom. Animal welfare was a priority, but some dogs reportedly experienced high workloads.

Principal Conclusions and Implications for Field: Dogs can offer substantial benefits in legal settings, for survivors and staff, including defense attorneys. However, their integration into courtrooms can be challenging and implementation should be carefully planned. Future research should empirically examine the benefits and challenges noted in this qualitative study, to understand whether dogs should be employed in legal settings.

Interaction Levels Between Human and Canine in Animal-Assisted Interventions in Residential Care for Adolescents. Application of a Video-Based Interaction Analytic Work in Germany

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Introduction: International studies show that interactions with animals can be very supportive in the field of child and youth welfare. In this context, quantitative studies are often cited which investigate the effects of animal-assisted interventions by using external and self-assessment questionnaires. Human-animal interactions, like interpersonal interactions, are complex and multifaceted. Unfortunately, detailed observations of these interactions are rarely applied in actual research.

Methodology: In order to measure interaction phenomena, the potentials of videography were used following the interaction analysis according to Jordan and Henderson (1995). Interaction analysis is used to find out how actors orient themselves to each other and coordinate their interactions with each other. The videographies were part of the research project “*Animal assisted interventions in therapeutic residential groups for adolescents*”, which evaluates a canine assisted intervention program for residential care facilities for young people in Berlin, Germany. 16 intervention sessions (à 60min) were videotaped. The data were analyzed using an adapted version of the video interaction analysis (Jordan, Henderson, 1995) and the documentary method according to (Bohnsack, 2009).

Main results: The instrument “Qualitative Eventskriptanalyse (QESA)” (Bredereck, Lanwehr i. w.) was developed to study significant behavior and action events and to structure the interaction levels between canine and human. A triangulative model of interactions in animal-assisted interventions as well as mediating aspects to levels of interaction was developed.

Principal conclusions and implications for the field: The findings from this study provide insights into the processes of animal-assisted intervention and the interactions between humans and canines. The QESA offers the possibility to look at smallest gestures, touches, emotional expressions and social rituals on a micro level and thus to demonstrate the emergence of personal/ social relationships. This study shows a seldom considered dimension of how a “Du-Evidenz” is established and how emotional relationships are developed in animal-assisted interventions.

Psychological and Physiological Impact of Dog Assisted Activities on Students and Staff in Higher Education

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Introduction: Stress and anxiety amongst students and staff in higher education institutions (HEI) result in increased levels of fatigue, and lower performance with impact on organisations and individuals. A fair amount of research has explored psychological benefits of animal assisted activities for students, with a lack of data on how those activities impact other members of HEI. In addition, the physiological drivers of psychological benefits drawn from interactions with animals are largely unexplored. The purpose of this study was to investigate the psychological impact of dog assisted activities on university students and staff and its physiological underpinnings.

Methodology: The sample of 20 students and 20 staff members at a HEI were randomly allocated to either a Live Interaction group (LI- direct contact with dogs) or a Video-Based group (VB). Both groups experienced 20 minutes of dog-assisted activity either directly or on video. Psychological measures of stress, mood, and well-being and physiological responses such as the electrocardiogram (ECG) and the electroencephalography (EEG) were recorded pre and post intervention.

Main results: LI and VB led to a decrease in stress and anxiety and an increase in well-being (all $p < 0.05$). Relative to baseline, both groups showed slower heart rate (HR) and less HR variability after the LI and VB sessions (all $p < 0.05$). Spectral analysis of the EEG revealed a pre-post increase in the Alpha/Beta ratio for both groups after both sessions (LI and VB) (all $p < 0.05$), thus suggesting a reduction of fast activity and increased synchronization at slower frequencies.

Principal Conclusions and Implications for Field: The study demonstrated benefits for both mental and physiological well-being of participants. These interventions can be further explored and be offered as complementary to conventional stress-management and wellbeing activities in higher education.

The Potential for Pets to Help Alleviate the Epidemic of Loneliness and Social Isolation and Lessons From the COVID-19 Pandemic

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Introduction: Despite an increasingly connected world, loneliness and social isolation are growing public health concerns, with experts declaring a loneliness epidemic even before COVID-19. Persistent loneliness has serious health consequences. This paper reviews outcomes of survey data and expert panels to assess the role companion animals may play in addressing this health crisis particularly in vulnerable segments of the population including older adults and those with mental health challenges.

Methodology: A 2018 U.S. survey of 2,036 people found 85% of pet owners and non-pet owners believed interaction with a companion animal can help reduce loneliness and 76% agreed human-animal interaction (HAI) can help address social isolation. In May 2019, Mars Petcare and the Human Animal Bond Research Institute (HABRI) hosted the first-ever *Summit on Social Isolation & Companion Animals* to explore the role pets can play in mitigating and preventing loneliness. Since then, the COVID-19 pandemic has exacerbated the loneliness epidemic and several large 2020 surveys are demonstrating a shift in how people are viewing their relationships with companion animals.

Main Findings: The Summit brought together a broad cross-section of experts and outlined a roadmap for advancing research, removing barriers to access pets for those experiencing loneliness, and driving best practices and solutions to fully understand how HAI may be an answer to the loneliness epidemic. These recommendations are even more relevant and applicable to the emotional challenges of social isolation caused by COVID-19.

Principle Conclusions and Implications for Field: The COVID-19 pandemic has increased society's focus on the epidemic of social isolation and loneliness and companion animals are likely to be a part of the solution. Now is the time to ensure that high-quality research examines for whom and under what circumstances interactions with companion animals may be effective and how best to help pets and people thrive together.

Evaluating Animal-Assisted Interventions with Youth: A New Version of the FACES Behavioral Observation Instrument

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Introduction: Self-report assessments of self-regulation in youth are prone to bias and often not valid when utilized in populations with complex psychosocial or learning impairments. Behavioral observations are one approach that can overcome these challenges when assessing the impacts of animal-assisted interventions on mental health. However, there remains a lack of reliable behavioral observation tools. The facial expression coding system (FACES) behavioral observation instrument was modified for use in special education classrooms that incorporate a variety of animal-assisted interventions.

Methodology: Eleven youth ages 11-13 were observed in two classrooms over two years at Green Chimneys. The FACES behavioral observation instrument was modified using an iterative codebook modification process to ensure that changes enhanced the sensitivity and reliability of the instrument. Interrater reliability scores (IRR) between 10 trained coders were calculated for 780 observations across 3 rounds of re-testing until adequate average IRR was reached (kappa > .6).

Results: A revised version of the FACES behavior observation system was found to have adequate interrater reliability (mean kappa > .6). The modification process resulted in changes to the recommended observation length to reduce cognitive fatigue, increased specificity of behavioral code definitions, and development of in-depth, standardized coder training procedures. These modifications increased average coder IRR scores from kappa = .2 to average kappa = .6.

Principal Conclusions and Implications for Field: These findings suggest that the revised FACES behavioral observation system provides objective and reliable quantitative measures of behaviors and intervention outcomes in populations with complex diagnoses and psychosocial or learning impairments. Further, this revised coding system allows for research in real world settings with youth in special education and mental health treatment. Limitations of the instrument include time intensive training and lower kappa averages than other behavior coding systems.

Towards a Deeper Understanding of the Mechanisms of Animal-Assisted Intervention in Pain Treatment: Is It the Animal or the Context That Matters?

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Background: Animal-assisted interventions (AAI) have been shown to be effective in the treatment of pain. However, the underlying mechanisms of AAI on pain have not been examined yet. Hence, we don't know if contextual factors, e.g. expectation, also plays an important role in AAI. As known from placebo-analgesia studies, expectation is a main contributor to pain relief.

Therefore, we investigated if the effect of the presence of a dog on pain can be explained by expectation and if this effect is similar to a placebo intervention.

Methods: We conducted a randomized controlled trial in healthy participants (N=128) with a standardized heat pain paradigm. Participants were randomly assigned to one of the four groups:

a) control group (CG), b) expectancy-induced analgesia, dog intervention (D) c) expectancy-induced analgesia, placebo intervention (P) d) expectancy-induced analgesia, dog and placebo intervention (DP).

We conducted baseline and posttreatment measurements of objective heat pain tolerance and threshold and corresponding subjective ratings of heat pain intensity and unpleasantness. Except for CG, all groups received an intervention after baseline measurements.

Results: Primarily analysis show that objective heat pain tolerance did not differ among groups. Further, D, P and DP did not differ regarding subjective pain ratings. However, for subjective heat pain ratings of heat pain threshold, both groups D ($p=0.033$) and P ($p=0.020$) reported reduced heat pain unpleasantness compared to CG.

Further, participants in the three intervention groups expected pain to be less intense ($t(123)=-4.260$, $p<0.001$, $d=-0.87$) and unpleasant ($t(123)=-2.682$, $p=0.0083$, $d=-1.12$) after treatment compared to the CG.

Discussion: The results show no difference between a placebo and animal-assisted intervention. This implies that both interventions work through same mechanisms, i.e. expectancy. This would also mean that the effect of AAI on pain cannot be attributed to the animal but rather to contextual factors.

Small Theories About the Effectiveness of Canine-Assisted Interventions in Educational Settings in Finland

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Introduction: Canine-assisted interventions (CAIs) are gaining popularity in educational settings all over the world. In Finland, CAIs are widely used in educational contexts, such as libraries, higher educational institutions and schools. However, the evidence base for such interventions is still underdeveloped. This paper aims to develop small theories (Kazdin, 2017) about the place, purpose and effectiveness of CAIs in educational settings in Finland, based on the accounts of the practitioners in the field.

Methodology: Data was collected through semi-structured interviews with 7 practitioners in the field of CAI across different educational contexts. The interview guide and the coding scheme were developed based on a review of current literature on the effect of animal-assisted interventions on learning as part of an 8-step inductive/deductive approach to thematic analysis that was used to ensure the trustworthiness of the study.

Main results: The thematic analysis revealed three small theories that CAI practitioners have about the effectiveness of CAIs in educational settings. Potentially, CAIs can improve learners' reading and oral skills, and provide them with a positive learning environment. Presumably, CAIs influence the educational goals indirectly through improving aspects of the learners' motivation, self-perception and self-regulation by providing emotional support and coping assistance. Improvement of the emotional state, in turn, is assumed to affect the attitude towards the learning situation, which is believed to improve educational outcomes. Interestingly, the changes in the emotional state are seen as a sufficient outcome.

Principal Conclusions and Implications for the Field: The three small theories have practical implications for future research in the field of CAI. They suggest a clear need for research, assessing the validity of the underlying assumptions of the small theories while providing a ready basis for designing new interventions.

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Effectiveness of Animal-Assisted Interventions for Children and Adults with Post-Traumatic Stress Disorder Symptoms: A Systematic Review and Meta-Analysis

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Introduction: Animal-assisted interventions (AAI) are increasingly applied for people with post-traumatic stress disorder (PTSD) symptoms albeit its effectiveness is unclear. This systematic review and meta-analysis examines the effectiveness of AAI for treating PTSD symptoms.

Methodology: 11 major electronic databases were searched for quantitative data on effects of AAI for children and adults with PTSD symptoms. Of 22'211 records identified, we included 41 studies (1'111 participants) for the systematic review, and 8 controlled studies (469 participants) for the meta-analysis. We conducted random-effects meta-analyses with all controlled studies based on standardized mean differences (SMD), and calculated standardized mean change (SMC) as effect sizes for studies with a pre-post one-group design. Two independent researchers assessed the quality of the included studies using the NIH Study Quality Assessment Tools. The primary outcome was PTSD or depression symptom severity measured via a standardized measurement at pre- and post-intervention.

Results: There was a small but not statistically significant superiority of AAI over standard PTSD psychotherapy (SMD= -0.26, 95% CI: -0.56 to 0.04) in reducing PTSD symptom severity while AAI was superior to waitlist (SMD= -0.82, 95% CI: -1.56 to 0.08). Getting a service dog was superior to waiting for a service dog (SMD= -0.58, 95% CI: -0.88 to -0.28). AAI led to comparable effects in reducing depression as standard PTSD psychotherapy (SMD= -0.03, CI: -0.88 to 0.83). Pre-post comparisons showed large variation for the reduction in PTSD symptom severity, with SMCs ranging from -0.38 to -1.64, and for depression symptom severity, ranging from 0.01 to -2.76. Getting a service dog lowered PTSD symptoms between -0.43 to -1.10 and depression with medium effect size of -0.74.

Conclusions: The results indicate that AAI are efficacious in reducing PTSD symptomatology and depression. There is a need for studies with robust study designs and large samples.

Exploring the Effects of the Presence of a Therapy Dog on Children in a Therapeutic Anxiety Management Group

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Introduction: Currently AAI is not a recognised treatment for showing difficulties with anxiety management. Whilst research in the field of AAI is promising, there is no published UK based evidence for the benefit of animals in a children's mental health setting. This service evaluation explored whether the presence of a registered Pet As Therapy (PAT) dog could have a positive impact on an anxiety management group for children aged 11-14.

Methodology: This service evaluation used a well-established group program within the North East London Foundation Trust (NHS). A total of 35 children were invited to attend. There were two cohorts, each with 2 groups running concurrently; one with the PAT dog and the other treatment as usual group. The first cohort ran in late 2019, and the second in early 2020. The latter was impacted by the Coronavirus outbreak and the final session was cancelled. The data was collated and analysed using Excel and SPSS.

Main results: Exploratory analysis suggested that the presence of a PAT dog reduced anxiety ratings for 5 out of 6 sessions and contributed to a higher discharge rate after completing the group (80% with the PAT dog vs 54% without the PAT dog). There was no notable difference in attendance rates. Qualitative feedback indicates that the presence of PAT dog improved the children's experiences e.g. children felt more relaxed and more confident to contribute.

Principal Conclusions and Implications for Field: Findings suggested that a PAT dog can be beneficial for improving children's experiences in mental health services and discharge rates. Future research with a larger sample size would need to be considered to further determine the impact of therapy animals on the effectiveness of children's mental health services within the NHS.

Use of Children's Drawings for Evaluation of Equine-Assisted Interventions-Development of Draw-a- Horse Scoring System

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Introduction: Evaluation of children's experiences are not easy task when the experience is novel and children do not have adequate vocabulary to express it. Yet, upon conducting animal assisted interventions, evaluation of the program is essential. In developmental psychology, drawing is often used to assess children's intelligence and perception. Psychologist, H. Gardener notes that drawing horses is a product of direct experiences with the horses (1980). In this study, based on Goodenough's Draw-a-Person test, a drawing scoring system for horses, Draw-a-Horse scoring system is developed.

Methodology: Third grader children in Tokyo Japan participated in equine assisted intervention from 2013-17. Ponies visited the school four times a year and children learned about the horses and also experienced riding. Based on 483 drawings children submitted were used to establish a scoring system. Then, 125 pairs of drawings, before and after riding, were compared using the scoring system.

Principal Conclusions and Implications for Field: The drawing scoring system, Draw-a-Horse consists of 12 parts, such as gross detail, attachment, head detail, joints, proportion and others. The total score is 44 with 1 point each for individual items. Average score of drawings before and after of 125 students were 26.5 and 30.2 respectively ($p < .001$). The body structures such as the drawing the neck, the body size or the tail position improved significantly after riding experience. The scoring system is a simple tool to assess the changes in their perception of horses after the riding experience. The Draw-a-Horse scoring system can be used to assess the changes in children's perception of the horses. It may be helpful to determine some aspects of the effects of the equine interventions.

The Use of Animal-Assisted Interventions to Promote Resilience in Youth Populations

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Research informs us that close to half of youth in the United States have been exposed to at least one adverse childhood experience such as poverty or abuse (Sacks & Murphy, 2018). Such exposure has been shown to lead to a multitude of complex problems. Thus, youth exposed to trauma have unique issues and thus are in need of unique, innovative treatment approaches. Research has also made it clear that resilience plays a key role in the ability of trauma-exposed youth to overcome various obstacles (Clements-Nolle & Waddington, 2017; Elmore et al., 2020; Kasehagen et al., 2017). Thus, this presentation will present a collection of preliminary evidence that animal-assisted interventions (AAs) may help to increase resilience in youth with a history of trauma. Studies showing AAs to be effective in increasing resilience will be presented along with research on other ways that AAs may help traumatized youth in general.

Relationships with a Non-Vertebrate Animal: Seven-Years Old Children and Their Giant African Land Snail (*Achatina Fulica*) at School

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Animal-assisted interventions (AAI) are useful in educational settings and the human-animal relationships are the educational prerequisite of successful learning. However, most studies on AAI emphasize dogs, horses, or other vertebrates. This study focussed on a mollusc, which is increasingly popular among Austrian educators, the Giant African land snail (*Achatina fulica*). This animal exhibits fascinating features such as sliminess, slow motion, sensitivity, and large size. Generally, the formation of attachment to a non-vertebrate animal is not expected. Thus, AAI with snails are yet a rather unexplored field. In an exploratory study we tested whether children form qualitative relationships with a Giant African land snail kept in a terrarium at school.

We studied the relationships of 15 seven-years old children with “their class snail”. The snail terrarium had been present in the classroom for seven months prior to the survey. A questionnaire specifically designed for measuring attachment and relationship quality between children and their pets [1] was employed to assess the children’s attachment to the snail (e. g. their trust and willingness to care for the animal).

The intensity of the children’s relationships with the snail was intermediate to high (41 ± 4) and in the range of same aged children’s relationship intensities with their cats, rabbits, and guinea pigs [2]. No differences due to gender were observed (Mann Whitney *U* test, $U = 20.5$; $p > 0.050$).

The results suggest that children potentially may develop attachment to a non-vertebrate animal. Working with non-vertebrate species at school has ethical and practical advantages. Snails, for example, are easy to keep, feed, transport and insensitive to noise. The presented first results indicate that AAI may benefit from employing non-vertebrate species in educational settings (and beyond).

[1] Beetz et al. (2011). *Anthrozoös*, 24, 349–368.

[2] Hirschenhauser et al. (2017). *Anthrozoös*, 30, 441-456.

At Both Ends of the Leash: Preventing Service Dog Oppression Through the Practice of Dyadic-Belonging

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Introduction: There is a growing interest in the “use” of service-dogs to enable people with disabilities to navigate the world more independently. On the surface, while this may appear to be progress, the question remains, for whom? While there is evidence that the presence of a service-dog is beneficial for those living with disabilities, this trend is not devoid of embedded assumptions and a need for caution.

Methodology: This analysis draws upon critical disability studies, critical animal studies, as well as aspects of labour studies, in order to provide a new rights-based model for navigating service-dog dyads.

Main Findings: In the face of growing public interest in service dogs, and the very real possibility of the inadvertent denial of their rights, we call for an urgent reframing of the human/service dog relationship through the application of *dyadic-belonging*. As exemplified by the lead author’s relationship with her canine partner Barkley, service-dog dyads can be mutually rights-respecting, while ensuring that the emancipation of the human does not come at the cost of the dog. *Dyadic-belonging* embraces the reciprocity and mutuality between partners, as a way to prevent the enslavement of a canine while enhancing the quality of life for people with disabilities. The necessity of the precautionary principle and the countering of hegemonic language which reifies the inferiority of animals is demonstrated.

Principal Conclusions and Implications for the Field: The *Dyadic Belonging* model provides recommendations for strengthened national-service dog policy, training, and oversight grounded in animal welfare. How disabled people are viewed and treated, matters. How dogs are viewed and treated equally matters. One set of needs stemming from structural oppression must not eclipse another, for there are shared oppressions and rights at both ends of the service dog leash.

Ethical Considerations in Human-Animal Interaction Research

Racial and Species Violence. On Justanimals and Barelyhumans

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It is an indisputable given that the humans are an animal. But, it seems, it is implicitly thought concurrently that they are hardly an animal anymore. The human animal is understood as a Hardlyanimal. Non-human animals are relegated to being Justanimals. This difference is foremost conceived as a normative difference. The evident, empirical difference between Justanimal and Hardlyanimal appears to the human animal, so grave that we have allowed ourselves, from the simple facticity of our being different and because of the power of our disposition, to deduce or invent a most dangerous normative difference. The human being thus posits s/he is not just an animal like other animals, s/he is not a Justanimal. The human being claims s/he is, and that is to be understood a very vulgar-normative sense, better than any other animal. This creates the belief that the human Hardlyanimal is superior to all other Justanimals.

The species structures of domination against the Justanimal are similar to those used against the victims of racial violence, human beings who are dehumanized, who are considered inferior humans, in other words: Barelyhumans. Structurally Justanimals and Barelyhumans are the same.

The construction of Justanimals and Barelyhumans is a foundational ethical problem. We, as I want to argue in this presentation, need to desuperiorise our thought to overcome this problem. We have to understand that racial and/or species violence rests solely on the misunderstanding of ourselves as superior. Following that alleged superiority, we have invented privileges. We need to not want these privileges, we need to understand that we never were the rightful owners of these privileges, because we never were/never will be better than any other living being; one practical consequence of desuperiorisation is the commitment to veganism.

Animal Agency: Do We Sell Them Short?

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Whenever professionals research, write about, work with, and/or live with animals, they tend to have certain assumptions about who the animals are and what they are capable of. Too often, these assumptions go unstated and can represent a limited or anthropocentric view of the animals. Animals, however, have remarkable abilities to survive in their natural environments. These abilities are in multiple dimensions, such as physical skills, sensory capacities, instinctual patterns, problem-solving skills, and flexible adaptation.

When animals live in less natural environments, such as under human care, the expression of their natural behaviors can be seen as problematic, resulting in training efforts to reduce, alter, or otherwise limit these behaviors. While some of this might be necessary, these practices can become quite restrictive, even when conducted in animal-friendly and positive ways. Without thinking, well-meaning people can go too far as they expect the animals to be other than who and what they are.

Agency refers to the capability of humans and animals to act within their environment, usually by choosing behaviors that help accomplish a goal. Animal agency can be limited by their socialization experiences, the environment at the moment, and the type of relationships they have with conspecifics and/or the humans who care for them (VanFleet, 2020). Humans can limit it by confinement methods, controlling equipment, excessive training, trying to solve all problems for the animals, removing animal autonomy or choices or problem-solving opportunities, and failing to see animal strengths. These practices can damage the human-animal relationships that ensue.

This presentation discusses ways in which agency is removed, often unintentionally, from the lives of animals and what people can do to return it to them, thereby improving their relationships. Specific examples from several species illustrate how to build agency back into animals' lives.

North American Felid Keepers Perception of Welfare and the Implications for Zoo Managers

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The current study set out to examine the perceptions of felid welfare in zoos and elucidate the factors that influence an individual animal care professional's acceptance and recognition of welfare. A total of 121 survey responses from felid keepers in AZA-accredited facilities were included in analysis. Results demonstrate job satisfaction is directly linked to access to training on welfare topics. The relationship between job satisfaction and the fulfillment of the 5 Freedoms is positively correlated, $r(116) = .217, p = .001$. Additionally, overall job satisfaction does not appear to influence the bond with felids, but it does with other zoo animals. Those with lower reported job satisfaction demonstrated an overall lower bond with non-felids, but their bond with felids remained consistent with peers who had higher job satisfaction. Participants in this study demonstrate the direct connection between job satisfaction and perceived fulfillment of the 5 Freedoms. Participants who were provided access to training and information on animal welfare, often demonstrated a higher job satisfaction, more positive perception of their employer, and overall view of zoos meeting the 5 Freedoms with captive felids.

The New Paradigm of Personal Choice on the Age to Spay or Neuter a Dog: A Recent Updating of the Ancient Practice of Castration of Livestock and Boys

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Castration of male livestock and humans has been a widespread and well-understood practice since ancient times, dating back at least 8,000 years. For several livestock species, castration was used to make the male animals easier to manage and it resulted in tastier meat. Castration of animals sometimes was included in religious ceremonies, as also seen in recent times in some cultures. Reflecting similar knowledge of methods and effects of castration, it also was a prevalent practice to castrate boys and men in major ancient cultures, producing eunuchs who often had special roles in the societies. Until the 20th century, many US people still lived on farms and were well aware of options for neutering their livestock animals. Yet, these common surgeries generally were not performed on their dogs, which typically lived outside of their homes. Gradually, some dogs were castrated as they began moving into people's homes, and it became a frequent practice. Spaying females also became common, delayed due to its greater surgical complexity and chance of infection. Only in recent decades in the US, did neutering dogs at 6 months of age, both males and females, become standard practice and sometimes required. Our recent studies of 35 dog breeds and mixed breed dogs revealed major breed, sex, and body weight differences associated with effects of neutering at young ages, with some increased risks of joint disorders and some cancers. These effects of neutering age point toward a new paradigm of individual choice, considering the specific dog and context when deciding on an appropriate neuter age. For small breeds and some larger ones, caregivers can choose any age for neutering without increasing the dog's risks of these joint disorders or cancers. Future research may reveal additional increased risks associated with neutering, such as age-related cognitive dysfunction.

Moving Forward: Transparent Citation Practices in Animal Behavior Research

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Introduction: The ethical requirements and practices of animal behavior research have changed significantly since the groundbreaking works of scholars such as Pavlov. This historic research in animal behavior is of value, and we cannot simply discontinue citing much of this work. However, it is an ethical dilemma to continue citing this work without accepting that many of the methods would no longer be approved. Hence, a new, transparent citation practice is needed when discussing these early publications.

Methodology: We provide recommendations and examples of ways to recognize the sacrifice of individual animals when citing early animal behavior research. Relatedly, we make suggestions of how the transparency of future work can improve the quality of research and welfare of animals moving forward.

Main Findings: Honoring and recognizing the animals in research as participants, rather than tools, is not difficult. Rather, it should become a common practice that is also expected by journal editors.

Principal Conclusions and Implications for the Field: Changing our citation practices when referencing research with unethical or outdated practices would require minimum work. Yet, the resulting paradigm shift around the role of animals in research could be exceptional. Much like researchers, IACUC boards, and journal editors consider husbandry and care, we suggest that improved citation practices is the next step in improving animal welfare in our work.

Setting the Stage: Historic Case Studies in Animal Behavior Research

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Introduction: Every Introduction to Psychology text cites Pavlov; any research on early social behavior cites Harlow; yet both of these research projects were among the many which considered animals merely as objects to be used in the pursuit of knowledge. In this presentation, we consider the ethics of this early research and weigh it with modern conceptualizations of who animals are.

Methodology: We review historic case studies in animal behavior (e.g., Pavlov), including details of the research, such as husbandry conditions, any invasive procedures, or medical care provided (or not provided) to the animals involved. We then name these animals, where possible, to honor their sacrifice as more than mere numbers and dismissed data points.

Main Findings: The true nature of most early research is ignored when citing or discussing these pivotal studies. While we cannot discontinue acknowledging the work of Pavlov, Harlow, and others, we suggest it is time to consider recognizing the animals in this work. Most of this early research would no longer be deemed ethical nor pass ethical review (IACUC/ AWERB).

Principal Conclusions and Implications for the Field: We need a new approach when citing research built upon the now unethical work of the past. A new approach should consider transparency in understanding how this knowledge was obtained, and in some cases, how it may not be applicable to more naturalized situations.

Redressing the Balance: Developing New Questions to Better Represent Dog Investment in the Human-Canine Animal Bond.=

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Introduction: Many existing questions have been used to assess the human-canine animal bond (HCAB), but most relate to human, rather than canine, investment in that bond. Given the importance of investment by both the dyad's parties, further development of canine investment measurement is warranted.

Methodology: Previous systematic literature reviews^{[1][2]} identified 169 human-animal interaction questionnaires that had been created before 2019. From these, 228 questions were identified as suitable for assessing HCAB and were grouped according to content theme. Simultaneously, 12 semi-structured interviews were conducted with dog guardians from various relationship types to explore new themes for question design based upon canine investment in HCAB. NVivo (v.12, QSR) was used for inductive thematic analysis of interview transcripts and themes identified from semantic and latent codes. Through systematic data coding, key themes emerged around owners' perceptions of dog investment into the HCAB.

Main Results: Only 15 of the existing 228 HCAB questions were exclusively dog-centred (independently agreed by two researchers). Qualitative analysis of the semi-structured interviews identified four key themes for future lines of questioning to address: owner understanding and respect for a dog's preferences; both parties' expectations from, or within, the HCAB; both parties' boundaries within the HCAB; both parties' adaptations to accommodate these factors.

Principal Conclusions and Implications for Field: Currently dog investment is underrepresented within most HCAB questionnaires. Future research is needed to create, validate, and reliability test additional canine investment-based questions within the four themes identified to allow HCAB tools to meet their construct criteria.

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What Has Changed: How Our Changing Relationships with Animals Changed the Ethics of Research

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Introduction: The ethics around animal behavior research has changed drastically over recent decades. While this is partially in response to pressures from funding agencies for traceable, financially sound outcomes, it is also likely in response to organizations that draw public attention to the use and treatment of animals in these spaces. Additionally, guardian relationships with companion animals have also changed significantly, leading to a public that is more concerned with, and invested in, the overall welfare of animals.

Methodology: We review changes in animal behavior research ethics and IACUC regulations, and correlate them to external cultural pressures for transparency. We also consider recent literature in animal cognition, educational outreach, and human-animal relationships that lead to a more informed and responsive public.

Main Findings: Should contemporary institutions support work like that completed by Pavlov, they would likely face significant backlash from the public and mass media. This suggests that the vested stakeholders of today's research no longer want projects that harm animals and treat them as numbers. Accordingly, it is time to be transparent when discussing historic works in both scholarly and popular writings.

Principal Conclusions and Implications for the Field: Citations practices moving forward should reflect the public consensus that animals are sentient, individual beings and need to be acknowledged and treated as participants in research. This includes considering how we cite historical literature upon which so much work is built, but also how we frame the information we share in future publications.

A Nature Interaction Pattern Approach for Human-Animal Interactions

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Introduction: Humans and animals interact in myriad ways. In traditional indigenous cultures, animals are sacred and equal, however, human-animal interactions (HAIs) are increasingly utilitarian. Animals assist humans to meet their basic biological needs (e.g. food, transport) and sometimes their higher-level needs (e.g. fulfillment, connection). Animals are often valued based on their contributions to humans; however, an emerging area of HAI research explores how reciprocity can deepen human-animal relationships.

Aims: This study considers how HAIs can be explored and understood in the context of nature connectedness and reciprocity, rather than human-focused utilitarian approaches. Peter Kahn Jr. and colleagues propose a nature interaction pattern approach to express and characterize meaningful human-nature engagements that generate psychological outcomes. This approach is applied to HAIs in this study

Method: 359 participants responded to an online short-response survey question about how encounters with wild marine animals affect nature connection. Participants were predominantly Australian (96%) and female (77%). Data were analysed by thematic template analysis in NvivoMac12 and coded to relevant interaction patterns and psychological descriptions.

Results: Five interactions patterns were utilised to code the data including; encountering wildlife, being recognised by non-human others, reading the signs of animals, interacting with periodicity, and encountering animals that can harm. The four psychological experiences engendered by these patterns include positive emotions, perspective gaining, fulfilment and connectedness. Representative quotes highlight participant voices in linking experiences, interactions pattern and psychological descriptions.

Discussion: HAIs viewed through a nature interaction pattern lens, allows subjective expression of experiences with wild marine animals. The psychological outcomes associated with interaction patterns highlight the potential positive benefits for both humans and animals. When contextualised within nature connection and mutuality, HAIs can produce positive and meaningful reflections and feelings for people, which expand their view of animals and themselves in relation to nature, and may encourage reciprocity.

Effect of Cooperative Care Training on Physiological Parameters and Compliance in Dogs Undergoing a Veterinary Examination

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Introduction: One way to reduce fear and lack of compliance during veterinary procedures is 'cooperative care training', training animals to voluntarily participate in husbandry and medical care. Here we assessed the effects of cooperative care training on heart rate (HR), heart rate variability (HRV), tympanic membrane temperature (TMT) and compliance of dogs during a veterinary examination.

Methodology: A blinded controlled trial with 47 dogs (training group (TG): 26; control group (CG): 21) was carried out. Dogs and their owners took part in a standardized veterinary visit twice (visit interval: 140 ± 23 days). In between, the TG took part in cooperative care training (10 ± 2 group training sessions, additional training at home). Linear mixed models were calculated (fixed effects HR/HRV: group* visit* period, TMT: group* visit; random effect: dogID). Compliance (completed steps of exam) was analyzed using McNemar tests.

Results: HR/HRV was higher/lower during the veterinary examination compared to the waiting room (period: $p < 0.001$), indicating that the examination was more stressful. No significant differences in HR/HRV regarding group*visit were found. TMT, taken at the end of each examination, resulted in a significant group*visit interaction ($p = 0.008$); stress appeared increased during visit 2 in the CG whereas in the TG mixed fluctuations were observed. Compliance was lower in the TG during the second visit ($p = 0.04$). Trainer and owners claimed observable improvement of behavior during training; a decrease in HR between visits correlated significantly with trainer perception of high training success ($r_s = -0.52$, $p = 0.049$).

Principal Conclusions: Transfer of trained skills to the veterinary examination performed by a team blinded to group allocation was poor. Despite reduced compliance, dogs rated high on training success had the highest HR decrease, supporting stress reducing effects of the training. Further research to optimize training outcomes is needed.

Ten Steps to Ensure the Welfare of Dogs in Animal-Assisted Interventions in Residential Care for Adolescents - Experiences from a Research Project in Germany

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Introduction: Canine-assisted interventions are increasingly implemented in residential youth care facilities in Germany, but few best practice examples have been published and little is known about how best to safe-guard the dogs' welfare.

Methodology: The research project "Tiergestützte Interventionen in Therapeutischen Jugendwohngruppen" ("Animal assisted interventions in therapeutic residential groups for adolescents", funded by the Institute for Applied Research Berlin, IFAF, duration: 04/2019 – 09/2021) develops and evaluates a canine-assisted intervention program for residential care facilities for young people in Berlin, Germany. The canine-assisted program "Berliner Schnauzen" ("Berlin snouts") is conducted by a human-dog team with a group of 4 to 7 adolescents with mental health difficulties twice a week for 8 weeks. The program is conducted in 7 residential care facilities.

The challenge of safe-guarding the dogs' welfare is given particular attention in the design and implementation of the animal-assisted intervention. For instance, animal welfare issues have been discussed in workshops with experts prior to program implementation and are included in the research protocol (e.g. analysis of video recordings of the sessions using an ethogram developed by Glenk et al. 2014; focus groups at the end of the program).

Main results: The research project identified 10 steps which seem particularly important. These relate to the selection and training of the human-dog teams and to the design and implementation of the animal assisted program in the residential care facilities for adolescents.

Principal conclusions and implications for the field: The findings of the pilot study highlight the importance of qualified training of the human-dog teams, ensuring the suitability of the teams for the specific setting and continuous supervision during the program. Further, compliance with existing standards (e.g. IAHAIO White Paper, recommendations of the German Registered Association of Veterinarians for Animal Protection) and detailed preparations regarding the implementation in residential youth care are pivotal.

Evaluating the Relationship Between Compassion for Nonhuman Animals and Compassion for Humans

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Introduction: The terms compassion and empathy are related yet represent distinct concepts. Empathy is the ability to understand someone else's perspective, whereas compassion is the ability to take the perspective of another being and feel motivated to alleviate their suffering. Studies examining associations between dispositions toward humans and nonhuman animals have commonly focused on comparing human-oriented and animal-oriented empathy. This study examined whether participants primed with an example of compassion towards animals would demonstrate as much desire to help humans via a hypothetical donation scenario as participants primed with an example of human-oriented compassion. We compared responses from participants in these two conditions with those of participants assigned to a control condition.

Methodology: Participants randomly assigned to the experimental conditions had to recall a time when they felt compassion either for animals ($n = 115$) or for other people ($n = 114$); those in the control group recalled the last dessert they ate ($n = 105$). Compassion for other people and for animals were measured using the Sussex-Oxford Compassion for Others Scale (SOCS-O) and a modified version of the SOCS-O scale, respectively. Data were analyzed using a Kruskal-Wallis H test and a Spearman's rank correlation test.

Main Findings: The donation amount did not differ across the three groups ($\chi^2(2) = 0.75, p = 0.69$). Animal-oriented compassion and human-oriented compassion were moderately, positively correlated ($r_s = 0.61, n = 334, p < 0.001$).

Principal Conclusions and Implications for the Field: The experimental manipulation did not affect willingness to help humans. Furthermore, the findings suggest that individuals who show high levels of compassion toward animals commonly show high levels of compassion toward humans as well. Thus, feeling compassion for animals does not necessarily detract from feeling compassion for people, or vice versa.

On the Menu: Japanese Exotic Animal Cafés Fueling the Pet Trade with Implications for Biodiversity, Global Health and Animal Welfare

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Wildlife trade is a multibillion-dollar industry and concerns not only the exploitation of animal species for their body parts for medicinal purposes or luxury food, but is also largely fueled by the demand for exotic pets. We document, in Japan, a relatively recent phenomenon closely related to the pet trade and rapidly spreading in Asia: the display of exotic animals in a café or bar context. We surveyed 142 exotic animal cafés (EACs) by visiting their website and/or social media accounts. We recorded every available exotic animal species present in EACs, their IUCN Red List status, and CITES Appendix. We compared the CITES Appendix-listed species imported into Japan during 2010-2019 to the species present in EACs. Most EACs opened between 2015 and 2017 under the label “owl café” and are grouped around major cities. We recorded >3200 individuals belonging to >360 different species. The most numerous exotic animals were birds but reptiles, mammals and to a lesser extent amphibians were also found. Numerous individuals belonged to threatened species according to the IUCN Red List. The majority of the species identified were CITES-listed (Appendix I and II, and to a lower extent Appendix I). The increase of importation of owl species is concomitant with the openings of EACs reflecting the demand for owls in Japan. We argue that these EACs, promoted through social media: 1) might have consequences for biodiversity as they contribute to wildlife trade, encourage the purchase of exotic animals, and are also a pool of potentially invasive species with their pathogens; 2) present a risk for pathogen transmission due to frequent close associations between consumers and various animal species; and 3) raise serious concerns about animal welfare.

Trials and Tribulations of New Veterinary Graduates

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Introduction: Veterinarians experience high levels of stress and burnout early in their career facing challenges that arise when caring for animals including client financial limitations affecting pet care, client expectations and complaints, and ethical dilemmas. This qualitative study aimed to document the experiences of new veterinary graduates within the United States to gain a deeper understanding of the challenges this population faces and how they could be best supported during the transition to practice.

Methodology: Six recent veterinary graduates from four different U.S. veterinary colleges participated in a virtual focus group. A semi-structured interview protocol was followed, and interviews were recorded and transcribed. The interview transcription was coded using first and second cycle coding, and similar codes were categorized to develop overarching themes.

Main Results: The transition to practice was a challenging time for the new veterinary graduates, and several themes arose regarding the new graduates' experiences including *setbacks and adaptations; self-sufficiency and self-doubt; changing clientele and ethical dilemmas; leadership and conflict; and good vs. bad mentorship*. In addition, *self-care, conflict management, and client communication* were perceived as important skills for success during the start of the veterinary practice. New veterinary graduates reported that they were least prepared for managing conflict and working with client financial constraints.

Principal Conclusions and Implications for Field: These findings suggest that new veterinary graduates should receive training in professional skills including conflict management, navigating ethical dilemmas, euthanasia including how veterinarians cope with their own grief surrounding euthanasia, and providing care for animals given limited financial resources. By improving confidence in these skills, veterinarians may have decreased stress and may be able to improve the quality of their care to better support the human-animal bond.

History, Evolution, and Importance of Competencies and Standards of Practice in Animal-Assisted Interventions

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Human-Animal Interactions as a field of study has a long history, but has lacked common language and a common set of competencies. At this time, there are no industry-wide standards of best practice for AAls, however several professional organizations are developing competencies for professionals wanting to conduct AAls. To assist in this area, over a dozen experts within the field of AAI and members of the APA Human Animal Interaction Division 17 Section 13 worked together to create a set of guidelines for mental health providers who want to include animals in their practices. With the incorporation of living beings into sessions, the risks of injury to the clients, the clinicians and the animals is greater. Having a set of competencies specific to AAls can help mitigate that risk and ensure more competent providers. The competencies follow the APA's Code of Ethics Boundary of Competence 2.0. This presentation will discuss the importance of a standard language and set of competencies as well as the risks of operating without standards. As no professional bodies currently ensure that professionals who work with their animals are operating with competence, criteria that clinicians may follow in order to achieve best practice is here offered. It is recommended that AAI practitioners follow the guidelines provided in order to minimize risks and liabilities to the clinician as well as risk to the animal and client. A particular guideline might have variation in its application depending on the milieu or circumstances at hand. For the purpose of this presentation, application will be approached from a trauma-informed framework. When using these guidelines, practitioners should keep in mind the following:

- Guidelines are Incomprehensive
- Clinical Judgement is Key
- Continuing Education should Continue
- Consider Theories, Ideas and Input Across Disciplines

The Controversy Over Reward- vs Aversive-Based Training Methods: How Strong Is the Scientific Evidence?

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Introduction: Dogs play an important role in our society and proper training is pivotal. The use of aversive stimuli in training is highly controversial and calls for regulation or even abolition of methods are frequent. Research into the efficacy and welfare impact of different dog training methods is crucial for informing policy-making.

Methodology: A literature review was conducted using the ISI Web of Science® database to target the studies published on the efficacy and welfare impact of dog training methods.

Main Findings: Literature regarding dog welfare (n=15 studies) suggests that aversive-based methods compromise dog welfare, with 11 studies showing stress caused by these methods, one showing more stress caused by a reward-based technique, and two reporting no differences. However, there are important limitations in the literature: no comprehensive research on companion dogs and mainstream techniques (besides e-collars), and most studies relying on owner-reported assessment of training methods and dog behavior.

Research on efficacy (n=10) points to reward-based methods being more effective, with five studies suggesting a higher efficacy of these methods, one pointing in the opposite direction and one showing no differences between methods. Two other studies demonstrated the efficacy of two specific methods (one reward-based and one aversive-based) but without directly comparing methods. Again, there are important limitations: studies generally rely on owner-reported measures of efficacy or the measures of efficacy are not standardized between studies, and training methods are often poorly described.

Principal Conclusions and Implications for Field: Overall, we found that the literature in the topic is scarce, somewhat inconsistent and above all methodologically limited. These limitations are exacerbated by the sometimes very strong claims in favor or against different methods. There is need for more research, with higher methodological quality and with bigger caution when it comes to interpret results and drawing conclusions.

Killing as Care: A Reconstruction of Narratives of Veterinary Students in Germany

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Introduction: In veterinary medicine, animal life is taken care of, as becomes clear from veterinary medicine's self-description as a 'protective' profession. Unlike in human medicine, killing is a part of veterinary practice. The ways of killing are constructed as custody practices in the narratives of veterinary professionalism. Killing as a situative act is a combination of practices, techniques, and actors. These assumptions show the ambivalence between the situations of 'putting to sleep' and 'butchering'. Veterinary students learn to integrate this ambivalence between care and killing, described in the literature as the 'caring-killing paradox' (Arluke and Sanders 1996), into their own understanding of the profession. Different situations of killing were central experiences of the students in the interviews. Two situations, in a curative practice and in a slaughterhouse, are analysed and broaden the understanding of care by acknowledging killing as part of care in their respective contexts.

Methodology: The analysis of ten narrative-biographical interviews with veterinary students follows the coding paradigm of the Grounded Theory methodology combined with a theoretical framework of care theory.

Main Results: Different situations of killing were central experiences of the interviewed students. Through the coding, it can be shown how killing is framed as an act of care in the vet profession, which consists of three dimensions: a practical, an affective-emotional, and an ethical-political.

Principal Conclusions and Implications for Field: This paper aims to remain sensitive to its multi-contextuality and analyses the similarities in identity construction in the interviewees' narratives, significantly forged by the unique aspect of killing as care. As the veterinary profession is highly multi-contextual, the research must follow along in order to understand the professional identity adequately. This study shows the importance of grounding care theory in empirical investigations.

References: Arluke, A. and Sanders, C.R. (1996). *Regarding animals*. Temple University Press, Philadelphia, USA.

Attitudes and Perceptions of Zoological Professionals and Animal Rights Activists Regarding Zoo Animal Welfare

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Introduction: While much research exists on the benefits, drawbacks, and ethics of zoos, no published literature examines how perspectives regarding animals differ or overlap between zoo personnel and animal rights activists. Zoo professionals and animal rights activists are sometimes described as being adversaries, although members of both groups tend to be passionate about helping animals. This research examined perceptions of zoo animal welfare and attitudes toward animals and other humans held by zoo and animal rights personnel.

Methodology: Individuals who work or volunteer at a zoo/aquarium or animal rights group were recruited to complete an online survey. The survey consisted of multiple validated measures that assess solidarity with animals and humans, speciesism and societal perceptions of animal welfare.

Main Results: Analyses of survey results collected from 144 people who work in the zoos/aquariums and 24 people who work in animal rights indicated that those in the rights group scored higher than those in the zoo group on measures of solidarity with animals ($W = 2660$, $p < 0.001$) and solidarity with humans ($W = 2654$, $p < 0.001$). Those in the zoo group scored higher on a measure of speciesism ($W = 101$, $p < 0.001$) and held more positive perceptions about zoo animal welfare ($W = 194$, $p < 0.001$).

Conclusions: These findings identify ways in which zoo personnel and animal rights activists' concerns for other animals and humans differ and provide some explanation regarding why members of these groups sometimes are at odds with each other. Study results suggest zoo/aquarium personnel are passionate about the animals in their care, whereas the concerns of those in animal rights groups commonly extend across many types of animals and to humans as well.

Human-Animal Interaction in Educational Settings

Qualitative Evaluation of Undergraduate Students' Reflective Process and Related Outcomes in a Humane Education Course

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Undergraduate students enrolled in a humane education course were asked to participate in reflective writing assignments as a regular course activity. Student artifacts from the reflective writing process were examined using qualitative analysis methods. Upon review of the findings from thematic coding, a total of five themes and six supporting sub-themes were identified. Identified themes demonstrated that students were able to communicate an interconnection between course theory to career applications. Thematic coding also revealed students began to enhance their personal and professional identities through an examination of values and ethics as a result of instructional design. Findings from this study provide evidence to support the inclusion of reflective writing as a vehicle to enhance student understanding of the field of humane education as well as the application of associated practices and philosophies in real-world environments.

Effects of Human-Animal Interactions on Affect and Cognition

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Introduction: Human-animal interaction has clear positive effects on people's affect and stress. But less is known about how animal interactions influence cognitive functioning. The objective of this study is to investigate whether interacting with animals improves cognitive performance, specifically executive functioning.

Methodology: We conducted an experiment in which 83 university students self-reported their affect and completed a series of cognitive tasks (long-term memory, attentional control, and working memory) before and after either a 3-minute interaction with a dog or a control activity. We used analysis of covariance to examine the effects of condition (dog interaction or control) on post-scores of affect and cognitive performance controlling for pre-scores. We calculated Bayes factors (BF) in addition to frequentist statistics.

Main Results: Interacting with a dog improved positive affect ($p < 0.001$, $\hat{\eta} = 0.19$, $BF = 456.7$) and decreased negative affect ($p = 0.004$, $\hat{\eta} = 0.10$, $BF = 9.4$), stress ($p = 0.015$, $\hat{\eta} = 0.07$, $BF = 3$), and anxiety ($p = 0.003$, $\hat{\eta} = 0.11$, $BF = 11.1$) compared to the control condition. However, we did not find effects of animal interaction on long-term memory ($p = 0.485$, $r = 0.08$, $BF = 0.21$), attentional control ($p = 0.516$, $\hat{\eta} = 0.01$, $BF = 0.30$), or working memory (n-back task: $p = 0.610$, $\hat{\eta} = 0.01$, $BF = 0.27$; digit span task: $p = 0.385$, $\hat{\eta} = 0.01$, $BF = 0.32$).

Principal Conclusions and Implications for Field: We replicated existing findings providing evidence that interacting with animals can improve affect, but we did not find similar improvements in cognitive performance. These results suggest that either (1) our interaction was not of sufficient dose or timed appropriately to elicit effects on cognition or (2) the mechanisms underlying effects of human-animal interaction on affect do not trigger downstream effects on executive functioning.

Interactions with a Future Guide Dog: A Pilot Study with First Year College Students

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Introduction: Symptoms of anxiety, depression, and stress are increasing significantly in college/university students (Oswalt et al., 2019), affecting success and retention. Animal assisted interventions are one possible strategy for overwhelmed counseling centers. This talk describes the outcomes of first semester college students being given the opportunity to interact with a future guide dog puppy from Guiding Eyes for the Blind.

Methodology: An informational email was sent to first semester residential students found to be at higher risk of attrition and academic struggles based upon data from the College's Institutional Research Department. Of the 28 who responded with interest, 14 participated in small group orientation sessions and four weekly 30-minute individual sessions with the puppy, and then filled out a survey. After the semester concluded, GPAs and retention rates of these students were compared to the 14 non-participants using SPSS software.

Main Results: Participants rated "stress relief" as the most important potential benefit of the program, 93% rating it as extremely important and 7% rating it as very important. The second most important was "knowing that my participation will help someone who is blind". Students noted getting to know a professor, having something to look forward to, and getting exercise as other advantages. The mean GPA for the student participants was 3.54 (SD = .82), and for non-participants was 2.82 (SD = 1.36); the GPA range was significantly different between the two groups ($U = 44.5, p = .014$). The retention rate for participants was 100%, while the retention rate for non-participants was 85.7%.

Principal Conclusions and Implications for Field: These findings suggest that repeated, purposeful interactions with a dog may reduce college student stress and increase retention and success.

References: Oswalt, S. B., Lederer, A. M., Chestnut-Steich, K., Day, C., Halbritter, A., & Ortiz, D. (2019). Trends in college students' mental health diagnoses and utilization of services, 2009–2015. *Journal of American College Health*, 1-11.

The Influence of Human-Animal Interaction on the Anxiety, Affect, and Heart Rate of Undergraduate Students

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Introduction: Student mental health is of significant concern on college campuses across the United States. Previous research found that both physical and virtual interaction with dogs influenced mood and cardiac functioning. This study aimed to include visitation with a variety of animals to determine if physical interaction influences mood, anxiety, and heart rate (HR) in an undergraduate student population when compared to virtual interaction.

Methodology: Undergraduate students ($n=148$) were randomly assigned to a five-minute session in which they either physically interacted (PHYSICAL) with animals belonging to one of three species (dog, goat, or miniature donkey) or watched a video of that species (VIDEO). Prior to the session, students completed a demographic/animal experience survey and three psychological assessments: the Positive and Negative Affect Schedule, State-Trait Anxiety Inventory, and Tension and Energetic Arousal subscales of the Dundee State Stress Questionnaire to evaluate affect (NA and PA), anxiety, and biopsychological arousal (TA and EA). HR was recorded during the session using a POLAR® HR sensor. Afterwards, students completed identical psychological assessments.

Main Results: Data analysis showed that anxiety, NA, and TA decreased after sessions in both the VIDEO ($p<0.0001$) and PHYSICAL ($p<0.0001$) groups. PA decreased in the VIDEO group ($p<0.0001$) but did not change in the PHYSICAL group. EA increased in the PHYSICAL group ($p<0.0001$) but did not change in the VIDEO group. A MANOVA with score change (Post-Pre) as the DV showed no difference in anxiety, NA, or TA. A difference was present in PA and EA scores by group ($p<0.0001$). No difference was shown in the HR change between animal or group assignments.

Conclusions and Implications: These findings indicate animal interventions may positively influence student mental wellbeing through both physical and virtual means, where physical interaction may be more advantageous in raising energy and positive mood states among undergraduate students.

Reading to Dogs in Schools: An Examination of Teachers' Perspectives

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Introduction: Reading to Dogs (RTD) interventions have become increasingly prevalent in UK primary schools, yet research examining teachers' perspectives of RTD, which could be key in influencing uptake and adherence to school RTD interventions, has not been conducted. This study sought to examine primary school teachers' views of RTD in schools, exploring perceived benefits and challenges, in addition to their experience of RTD interventions.

Methodology: 253 UK primary school teachers (with varying knowledge and experience of RTD) completed an online questionnaire focusing on benefits and challenges associated with RTD identified in existing literature. More specifically, teachers' perspectives of reading, social, emotional and behavioural benefits, and challenges were examined. Fifty-nine teachers provided additional qualitative insights regarding benefits and challenges associated with RTD.

Main Results: Teachers' viewed RTD as benefiting children's wellbeing ($M=4.31$, $SD=.66$, $t(252) = 31.52$, $p < .001$) reading affect ($M=4.13$, $SD=.73$, $t(252) = 24.66$, $p < .001$), reading frequency ($M=3.83$, $SD=.92$) $t(252), = 14.49$, $p < .001$) and reading skill ($t(252) = 12.16$, $p < .001$, $M = 3.75$, $SD= .98$). Teachers with greater knowledge and/or experience of RTD were more positive about RTD for all outcomes including: children's wellbeing ($U = 1344$, $p < .001$) and reading affect ($U = 1295$, $p < .001$), reading frequency ($U = 1129$, $p < .05$) and reading skill ($U = 1165$, $p < .005$). Teachers reported low concerns about the challenges associated with RTD, with qualitative comments indicating challenges were viewed as manageable within the classroom.

Principal Conclusions and implications: Primary school teachers were very positive about RTD, acknowledging more benefits than challenges. Understanding teachers' perspectives on RTD is essential to ensure their professional and pedagogical expertise feeds into future intervention design and implementation. It is recommended that RTD research embraces both co-design of interventions with teachers and implementation science research in schools.

Sharing the Stories of Rescued Animals with Care Experienced Children to Foster Compassion and Help Reverse the Cycle of Abuse

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Award winning humane education charity Fostering Compassion addresses the links between animal abuse, child abuse and interpersonal violence and works to reverse the cycle of abuse often existing in these circumstances. Working with children who may be showing worrying behaviour towards animals and be lacking compassion and empathy, we share stories of rescued animals in such a way that the children draw parallels with their own circumstances. This helps the children learn to see animals as sentient beings who experience similar emotions to them often providing a platform for the children to open up about their own neglect, helping turn worrying behaviour into caring, nurturing behaviour.

Starting in 2013 with 10 children, by the end of 2020 over 750 children benefitted from the programme. Children referred have suffered traumatic and abusive early years, often witnessing cruelty to animals resulting in indifference towards them.

Through unique connections with animals we create an environment where children feel they belong leading to improved feelings of self worth and self confidence. They learn they can make a difference in the world and their actions make a difference. We provide coping techniques to continue at home to build on positive behaviour changes taking place during our workshops. Initial results from research carried out by Masters Students from Edinburgh University on the work of Fostering Compassion are very promising. Children participating in Fostering Compassion showed significant improvements in their belief in animal minds (Child-BAM), animal welfare knowledge, attachment to animals, and attitudes towards cruelty. These findings indicate that the workshops improve children's orientations towards animals and are likely to reduce the likelihood of these children being cruel to animals in the future.

The pandemic has led to greater demand for our workshops and development of online Support Services promoting children's wellbeing through connections with animals.

Canines as a Constant in a Changing World: Cuddles, Comfort, and Confidence During the Coronavirus Pandemic

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Animal-assisted interventions (AAls) attract widespread interest in education around the world, with studies suggesting benefits to pupil's social, emotional, physical, behavioural, and cognitive development (e.g. Purewal et al, 2017). Promoting children and young people's wellbeing has taken on added significance since the outbreak of the coronavirus pandemic.

The purpose of this presentation is to consider the rationale for involving animals to support pupils during these unprecedented times. It is based on an international survey of 607 educators working in a range of settings, in 26 countries. Despite the different contexts within which these educators work, the findings show that developing pupils' wellbeing was the major reason for involving animals, followed by promoting empathy and a sense of responsibility.

The presentation also explores the innovative ways that educators found to involve animals during a 'new normal' of lockdown and social distancing, including remote lunches, online book clubs and 'crafting with dogs'. We explore the benefits educators felt such involvement brought to their pupils, colleagues, and the animals themselves during a time of change and uncertainty. We consider what lessons we can learn from these innovations for future AAls in educational settings.

References:

Purewal, R., Christley, R., Kordas, K., Joinson, C., Meints, K., Gee, N., & Westgarth, C. (2017). Companion animals and child/adolescent development: a systematic review of the evidence. *International Journal of Environmental Research and Public Health*, 14(3), 234.

Understanding Links Between College Students' Childhood Pet Ownership and Separation Anxiety During the Transition to College

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Introduction: Despite evidence that youth form a strong attachment to their companion animal, virtually nothing is known about the extent to which the strength and quality of this attachment and behavioral involvement with their pet contributes to students' separation anxiety during the transition to college. Given that separation may constitute a potential risk factor for developing mental health issues, research should explore these associations.

Methodology: A month before arrival on campus, we approached a randomly selected sample of incoming freshmen ($n=2000$) resulting in 145 students endorsing pet-ownership and completing the Lexington Attachment-to-Pet Scale (Johnson et al. 1992) and the Human-Pet Relationships measure (Siegel, 1990). During their first week of classes, students reported on the severity of pet-related separation anxiety (SMSAD-A; Craske et al., 2013). Regression analyses were conducted to estimate contributions of students' characteristics (e.g., first-generation, mental health history), pet-directed behavior, and pet-attachment predict pet-related separation anxiety.

Main Results: Of the sampled incoming students, nearly 3 in 4 reported experiencing mild to severe pet-related separation anxiety (mild= 49.7%; moderate = 22.1%; severe = 3.4%). Regression analyses showed that people-substituting-related pet-attachment ($\beta=.257, p=.004$), nights per week of pet-co-sleeping ($\beta=.203, p=.007$), and spending more time with them compared to others with pets ($\beta=.280, p=.001$) were positively associated with separation anxiety even when prior mental health history was considered ($\beta=.232, p=.001$).

Principal Conclusions and Implications for Field: These findings suggest that students with pets that play a large role in their lives may be at increased risk of experiencing separation anxiety during the transition to college. Experiencing separation anxiety may disrupt students' adaptive transition to college and subsequent academic success putting them at higher risk of discontinuous college careers or dropping out. Given increased awareness of pet-ownership in the lives of humans, this work suggests indicators related to pet-ownership may serve as risk factors for college students beyond traditional mental health considerations.

Role and Purpose of Direct Human-Animal Interactions in the Crested Porcupine (*Hystrix africae australis*) and Guinea Pig (*Cavia porcellus*) in Educational Establishments in the United Kingdom

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Engagement with non-human animals is becoming a fast growing field within animal studies, allowing for research collaboration between the animal science and comparative psychology and social science sectors. Human-animal interactions are increasing in accessibility in a range of educational, zoological and social care environments. Many ethical issues have arisen worldwide with animal interactions, with poor welfare considerations being a key focal point. One of the key focuses in this study was ensuring the welfare of the animal was maintained throughout its entirety, with emphasis on ensuring high welfare and husbandry standards being maintained and abided by before, during and after all interactions.

This study comprised of one educational establishment in the United Kingdom and included participation from a range of 11 – 60-year-old participants. African Crested Porcupines (*Hystrix africae australis*) and Guinea Pigs (*Cavia porcellus*) was the choice of non-human animal focused on as a comparable exotic and domestic mammal respectively. The studies aim was to identify the benefit and role of non-human animal interactions for the animal, human and educational establishment. Both quantitative and qualitative participant questionnaires were utilised; with behavioural data collected during each 15-minute interaction using a bespoke ethogram. Data was analysed through perceptions listed and documented following completion of the questionnaires, and any change in perception following the interaction. Number of selfies and photos taken was recorded and analysed, alongside questions and perceived knowledge on the animal's conservation status gained from the interaction.

Perceptions on animals, and more specifically non-human animal interactions, are highly influenced by many factors; social media, family, friends, prior experience and careers, therefore it is hoped this study will allow for further for wider research into an area that is currently under researched and published on.

Taking the Lead: An International Comparison of Educators' Views and Practices in Relation to the Involvement of Dogs in Schools

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The use of animal-assisted interventions (AAls) in educational settings is widely reported around the world (e.g. Lewis and Grigg, 2020). However, little comparative analysis of the views and practices of educators working in different countries has been undertaken. The aim of this presentation is to address this.

The methodology is based on an online survey completed by 607 educators from 26 countries. Questions generated a range of qualitative and quantitative data. Participation was voluntary and the research followed appropriate ethical guidance. This paper focuses on comparisons between one subgroup from the data, namely educators in the United Kingdom and North America who involve dogs in their practice. The respondents work across a range of schools and other educational settings.

The presentation focuses on their views on the rationale for and involvement of animals in their settings, along with their practices in relation to their care.

The preliminary analysis identifies a widely held view that promoting children's wellbeing is the most important reason for using AAls. Two thirds of all participants stated that 'improving children's wellbeing' was their main reason for using dogs in their school. This was followed reasons relating to 'improving pupil behaviour' and 'improving pupils attitudes to aspects of learning such as reading. We also suggest however, that cultural contexts may shape different views on a range of matters. For example, we report on significant differences in views held on the appropriate age for dogs to become involved in school life, on respondent's access to professional training and registration, and on their perceptions around the wellbeing of the animals themselves.

References:

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Education's Impact on Knowledge, Attitudes, and Behaviors Involving Animals

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Introduction: Few studies assess the impact of education on knowledge of animals, attitudes towards animals, and consumption of animals. We report three experiments estimating the impact of common educational interventions on knowledge, attitudes, and animal consumption.

Methodology: Experiment 1 ($N = 195$) used a two-group, pretest-posttest design. One group received an infographic about animals used as food and the other group received an infographic about coffee. The dependent variable was the Knowledge of Animals as Food scale (KAFS) (Feltz & Feltz, A., 2019). Experiment 2 ($N = 196$) used a five-group (reading one of two ethics papers, watching a video, reading a pamphlet), pretest-posttest design with a control condition (a 2-minute video about how to make coffee). Experiment 3 ($N = 178$) used a 2 group (ethics college class v. not in an ethics college class) pretest-posttest design. The dependent variables were the KAFS, the 4Ns, and a composite measure of animal product consumption.

Main Results: Experiment 1 suggested that the infographic increased knowledge (pre-post interaction $F(1, 193) = 5.06, p = .03, \eta_p^2 = .03$). Experiments 1 and 2 suggested animal consumption does not reliably change as a function of educational interventions. Rather, those who learned more and had lowered attitudes justifying animal consumption (e.g., 4Ns) tended to consume fewer animal products (Experiment 2 $R^2_{change} = .02, F(1, 194) = 3.97, p = .05$; Experiment 3 $R^2_{change} = .08, F(1, 176) = 14.68, p < .01$).

Principal Conclusions and Implications for Field: These results suggest that changing only knowledge or values does not reliably change animal consumption behaviors. These findings can be important for researchers and activists interested in creating interventions.

References: Feltz, S., & Feltz, A. (2019). The Knowledge of Animal as Food Scale. *Human-animal Interaction Bulletin*, 7, 19-45.

Identifying College Students' Interests and Preferences for Feline and Canine Physical and Behavioral Traits During Animal Assisted Interventions (AAIs) Using a Mixed-Methods Approach

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Introduction: While college-based Animal Assisted Interventions (AAIs) with dogs are popular, little is known about the feasibility of including cats in AAI programs. Few studies have examined students' interest in interacting with cats, nor is much known about the physical and behavioral traits students find appealing or objectionable in either species, or whether these preferences vary by students' characteristics.

Methodology: This presentation is based on findings from survey data collected in two studies featuring undergraduate student participants (M age = 19.94). Study 1 participants were asked to view a slide presentation featuring 46 images of dogs (30) and cats (16) to indicate their preferences for an AAI interaction 10 minutes later. Study 2 participants completed an online survey featuring 50 pictures of dogs (32) and cats (18). In both studies, participants were asked how much they would like to interact with each animal (on a scale of 0-4), as well as indicate their preferred animal (1 of 2; 1 of 3). In study 2, using an open-ended format, participants were also asked to *describe* which factors informed their preference. Qualitative data were analyzed using thematic and axial coding; resulting themes were coded for reliability.

Main Results: Quantitative results showed no preferences by species or breed, although participants preferred large dogs over cats and small dogs, and younger animals over mature ones. Qualitative findings will be described by theme/subthemes and quotes will be provided for each, including *physical traits* (e.g., fur, age, size, species, breed, color), ascribed *behavioral traits* (e.g., energy level; projected emotion, personality) and *factors informing student preference* (e.g., childhood pet-ownership, experience).

Principal Conclusions and Implications for Field: These findings suggest that certain physical and behavioral traits underlie students' preferences. Recruiting AAI animals who embody these preferred traits may increase the appeal of multi-species programs.

Human-Wildlife Conflict in the 21st Century

Assessing How Education, Fear and Experience Affect Individuals' Attitudes Toward Snakes

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Introduction: How humans perceive wildlife is an important factor to consider when creating conservation plans, especially for commonly feared animals, such as snakes. This quantitative study investigated how education and prior experience with snakes affects perceptions of and conservation support for snakes.

Methodology: As part of an online survey, participants watched one of three educational videos about snakes. The first video featured a ball python and included narration describing basic facts about snakes. The second video dispelled commonly held myths about snakes and included slides and narration regarding strategies for coexisting with them. The third video was comprised of the first two videos. Nineteen participants viewed the first video, 45 viewed the second, and 46 viewed the third. Participants then completed the Perceptions of Snakes Survey (Horsley and Green, 2019). Wilcoxon signed ranks tests were used to determine how education and prior experience with snakes impacts perceptions of them.

Main Results/Findings: Attitudes toward snakes did not vary by video condition (for all measures, $p > 0.05$). However, owning a snake significantly reduced negativistic perceptions of them ($W = 1514$, $p < 0.001$), and increased scientific views ($W = 510$, $p < 0.001$). Those who had experience handling snakes held stronger utilitarian ($W = 618$, $p < 0.001$), and scientific ($W = 581$, $p < 0.001$) views regarding snakes and lower negativistic ($W = 1878.5$, $p < 0.001$) views.

Principal conclusions and implications for the field: Findings suggest that exposure to recorded educational content about snakes has no immediate impact on individuals' attitudes toward them. However, interacting with a snake was positively associated with perceptions of them. These findings suggest that it may benefit snake conservation efforts to include more opportunities for the public to interact with snakes.

References:

Horsley, S., & Green, G. T. (2019). Construction and validation of a Survey to measure perceptions of snakes. *Applied Environmental Education & Communication*, 18(2), 140–153. <https://doi.org/10.1080/1533015X.2018.1445568>

Impacts of COVID-19 on the Human-Animal Relationship

Brief Report: Pet Presence, Pet Attachment, and Mental Health during COVID-19 Lockdown

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Research has indicated possible rises in global mental health difficulties during the COVID-19 pandemic. One such cause may be social isolation which could be mitigated through the company of pet animals. This study aimed to examine the impact of pet presence and human-pet attachment on human mental health over the course of one year during the pandemic. 85 participants completed an online survey comprised of standardised mental health measures (DASS-21, PANAS, PGWBI) and the Lexington Attachment to Pets Scale (LAPS) at 3 time-points over lockdown in 2020. 45 participants completed a 4th and final survey during another lockdown in 2021. We also collected qualitative data through open-text responses. The findings show that compared to non-pet owners, pet owners scored significantly higher on stress and negative affect at time 1 and significantly higher on stress and anxiety at time 4. Pet attachment levels remained the same over time. Regression analysis found that high attachment to pets significantly predicted higher stress and anxiety and lower psychological wellbeing at time 1. No significant regressions were found for time 2 or 3 (low number of restrictions). At time 4, high attachment to pets significantly predicted higher stress, anxiety and depression and lower psychological wellbeing. These findings suggest that for the participants in our study, during a full lockdown (times 1 and 4), having a pet, and particularly being highly attached to a pet, predicted poorer mental health, potentially due to unique hardships related to pet ownership during the pandemic. This was not corroborated by our qualitative findings where no negative impacts of pets were reported. It is important that we continue to monitor the long-term impact of the pandemic and related stressors on the human-pet relationship.

The Effects of an Online-Guided, At-Home Dog Training Session on Owner Anxiety, Mood, and General Self-Efficacy During COVID-19

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Introduction: Many studies have demonstrated the positive effects on owners of brief, unstructured interactions with dogs, including improved mood and reduced anxiety. Few studies, though, have explored the psychological impact when owners take part in more structured obedience training with the dog. This study examined the effects of owners taking part in a single session of training or playing with their own dog in their own home during COVID-19 lockdowns. Dog-owner relationship quality was also measured to investigate whether this influenced any observed changes to the outcome variables.

Methodology: Participants ($N = 83$) were assigned to either the training group, involving 10-minutes of guided obedience training, or a comparison group, involving 10-minutes of unstructured play. Before the sessions, participants in each group watched videos demonstrating the interaction and then completed the Dog Owner Relationship Scale (DORS) to measure owner-dog relationship quality. Before and immediately after the session, they completed the 6-item version of the state scale of the State Trait Anxiety Inventory (STAI-6), the Positive and Negative Affect Schedule (PANAS), and the New General Self-Efficacy Scale (NGSE). A between-within multivariate analysis of variance (MANOVA) was conducted with follow-up Bonferroni-corrected univariate ANOVA, to measure differences in the outcomes between groups over time

Main Results: Analysis indicated no significant differences between groups, but revealed a significant, large effect on scores for both groups on all outcome variables over time, $F = 49.37$, $p < .001$, partial $\eta^2 = .72$. Analyses of interaction effects between well-being measures and the DORS, found no significant effects, indicating dog-owner relationship did not moderate the observed improvements in well-being.

Principal Conclusions and Implications for the Field: Results from this preliminary study suggest that a brief, single-session, online-guided interaction with a dog – whether training or playing with them – can confer short-term, psychological benefits for the owners.

Impact of COVID-19 Pandemic on Perceived Emotional Closeness to Pet and Pet Effect on Perceived Stress and Loneliness

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Introduction: This longitudinal study aims to investigate the dynamic effects of COVID-19 on human-animal relationships and how pet ownership affects perceived stress and loneliness in humans. The study hypotheses are 1) perceived emotional closeness to pets will differ during different phases of the COVID-19 pandemic, and 2) perceived stress and loneliness levels will differ between pet owners and non-pet owners. Preliminary results from February to June 2020 data are presented as we continue the longitudinal data collection.

Methodology: A total of 269 non-pet, 660 dog and 689 cat owners completed a survey to collect retrospective and concurrent data during pre-pandemic (February 2020), shutdown (April 2020) and reopening (June 2020) phases of the pandemic. Surveys included validated instruments to quantify perceived emotional closeness to pets and perceived stress and loneliness in humans. Longitudinal data were analyzed using mixed regression.

Main Results: We observed an increase in perceived emotional closeness to pets in both cat and dog owners during shutdown and reopening compared to the pre-pandemic phase (all P 's < 0.001). However, the data also suggested that human-animal relationships were adversely affected by the financial burden of caring for pets during shutdown and reopening phases ($P=0.011$ and $P<0.001$, respectively). No significant difference in perceived stress between pet owners and non-pet owners was observed at any time point, although non-pet owners reported the largest percent increase (4.6%, 4.1% and 3.2% for non-pet, dog and cat owners, respectively). Dog owners reported lower perceived loneliness compared to non-pet owners but only during the pre-pandemic phase ($P=0.031$).

Principal conclusions and implications for the field: The preliminary results demonstrate the dynamic impact of COVID-19 on human-animal relationships and how animal companionship might affect perceived stress and loneliness in humans even during the first few months of the pandemic. Epidemiological investigations of its long-term effects are warranted.

An Exploratory Analysis of Delivery Alternatives for University Based Animal Therapy During COVID-19

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Introduction: Animal therapy programs are being offered progressively in universities to support students' well-being. This study extends previous research to investigate satisfaction with current offerings in the overall student population, and to assess what an ideal provision should look like, virtually and in-person.

Methodology: An online survey was administered through various student groups and organizations. A total of 386 surveys were completed for an estimated participation rate of 1.3%. Quantitative analysis was conducted using SPSS software.

Main results: In a previous study, findings suggested that short duration drop-in therapy dog events appeal to students seeking a quick mood-enhancer that is free of the stigma sometimes associated with mental health resources. A subsequent follow-up study was initiated in September 2020 and found participants were more willing to wait for a session, if it was longer ($r(333) = .417, p < .001$). The most popular future provisions were animal cafes, and drop-in small groups, lasting 10-20 minutes, with a wait time of under 16 minutes, allowing participants to attend on an 'as-needed' basis.

In terms of virtual delivery methods, 51% were not interested while 35% showed interest. Only 4% of participants reported having attended a virtual animal therapy session previously, and almost all of those who had (94%), expressed an interest in attending more. For virtual delivery methods, majority of participants preferred Facebook/Instagram Live (51%) or Zoom (23%).

Principle conclusions and implications for the field: Overall, our study suggests that students prefer longer in-person session lengths conducted in smaller group sizes and as drop-in offerings. The idea of Animal Cafes also received strong support. Surprisingly, students found less value in virtual animal therapy events; although, this may be due to unfamiliarity with these type of sessions. Future studies could be conducted to determine students' interest and satisfaction after attending a virtual animal therapy session.

“I Couldn’t Have Asked for a Better Quarantine Partner!”: Experiences with Companion Dogs During Covid-19.

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The Covid-19 pandemic has been found to negatively impact the psychological well-being of significant numbers of people globally. Many individuals have been challenged by social distancing mandates and the resultant social isolation. Humans, in our modern world, have rarely been as isolated and socially restricted. Social connectedness and support are critical protective factors for human survival and well-being. Social isolation can lead to loneliness, boredom, and can become a risk factor for physical and mental health issues such as anxiety and depression. The attachments formed with dogs, however, can be as strong or even stronger than human connections, and has been shown to relate to fewer physical health and mental health problems, as well as decrease isolation and loneliness. The purpose of this qualitative research was to examine the thoughts, experiences and concerns of 4105 adults regarding their companion dog during the initial months of COVID-19. Data were collected between March 31st – April 19th, 2020 via online survey and themes were coded by the researchers using directed content analysis. Results highlighted a strong human-animal appreciation, and that dog ownership during this pandemic diminished participants’ sense of isolation and loneliness, as well as supported their mental/physical health.

Online Therapy Dog Programming: What's in it for the Dog?

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The University of Saskatchewan closed access to its campus in March 2020 in response to the COVID-19 pandemic. Prior to this, therapy dogs had been visiting the campus since 2015. The goal of the University of Saskatchewan PAWS Your Stress Therapy Dog program is to offer participants feelings of comfort and support. The COVID-19 pandemic has put students and staff at heightened risk of experiencing mental health concerns. In response, our team transitioned the therapy dog program from an in-person to online format. We designed content for participants to (1) connect with therapy dogs and experience increased feelings of comfort and support; and (2) increase their knowledge of pandemic-specific, evidence-informed mental health tips. For example, we partnered with the Canadian Centre on Substance Use and Addiction and the Mental Health Commission of Canada to design a resource which outlines how the connection between animals and humans can be beneficial to human health. Our on-line program highlighted what dogs can teach humans about health through their own care and daily activities. From April-June 2020, we developed a website, and created Facebook livestreams and pre-recorded videos that featured therapy dogs and handlers. Over three months, a process and outcome evaluation determined that our activities contributed to the program's goals. Key lessons were learned related to program personnel, handler training and support, and online expertise. However, there is a critical and lingering question, and that is, what's in it for the therapy dogs who transitioned online with their handlers? Acknowledging that humans and dogs engage in a reciprocal relationship in in-person therapy dog programming, this presentation critically reflects on dog specific ethical considerations in the transition of our therapy dog program to a virtual format.

The Impact of COVID-19 on Public Perception of Industrial Farming

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Introduction: A national survey was conducted to examine public understanding of and concern about how industrial animal agriculture impacts animal and human welfare. The goal was to gauge if/how the COVID pandemic influenced public sentiments. This study focused on the following impacts:

- animal suffering
- safety of workers on farms and in slaughterhouses
- disease transfer from animal to humans
- health risks and quality of life impacts for communities
- food safety risks from products
- environmental impact

Methodology: An online survey was administered to a representative sample of 1,000 American adults.

Main Results/findings:

- 65% (95% CI [61.2, 68.8]) of the public reported having heard about at least one negative impact of industrial agriculture since the start of the pandemic.
- Those who had heard about negative impacts since the start of the pandemic were statistically more likely to report (all comparisons were significant at $p < .05$):
 - being concerned about industrial agriculture's risks to animal welfare, worker safety, or public health
 - belief that industrial agriculture contributes to compromised animal welfare, worker safety, and public health
 - support for prioritizing government funds for farms using higher welfare practices
 - support for reducing slaughter speeds
 - support for a ban on all new industrial farms
 - shifting shopping behaviors toward better welfare options

Principal conclusions and implications for the field: The pandemic alerted or sensitized most respondents representing the American public to problematic practices that occur within industrial agriculture and their impacts. As a result, the public is likely to be more amenable to reforms of the industry to protect animals' welfare, human health and the environment such as legislation (e.g. the Farm System Reform Act).

“More Attention Than Usual”: A Thematic Analysis of Dog Ownership Experiences in the UK During the First COVID-19 Lockdown

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In March 2020, the UK Government imposed a nationwide lockdown to help reduce the transmission of COVID-19. Lockdown control measures led many dog owners to make changes to their daily routines. This qualitative study aimed to explore how the experience of dog ownership in the UK was impacted during this lockdown.

Data came from open-ended survey questions and electronic diary entries completed during the first nationwide lockdown by members of the general public and participants involved in “Generation Pup”, an ongoing longitudinal study of dogs. Responses were imported into NVivo (v.12) and analysed using inductive thematic analysis. A total of 10,510 free-text entries were analysed.

Three major themes emerged: spending time at home with dogs, walking practices, and behaviour and training. Owners valued having more time than usual with their dogs but also recognised that spending extra time with their dogs may negatively impact on their dogs’ future ability to cope when left alone. In spite of this, few owners provided alone time for their dogs during the lockdown. The opportunity to walk their dog(s) as part of their permitted daily exercise was regarded positively, but walks were not always felt to be adequate with respect to providing sufficient exercise and opportunities for interaction with other dogs. New undesirable behaviours in dogs during the lockdown were reported, including dogs being “clingy” or vocalising when briefly left alone.

These findings have implications for the design of interventions aiming to promote dog welfare, particularly in relation to preventing separation-related behaviours. The provision of behavioural first aid for owners who are noticing a change in their dog’s behaviour could also be beneficial. Further research as part of this study will investigate short- and long-term behavioural changes in dogs during and after the lockdown.

The Impact of COVID-19 Restrictions on Assistance Dogs and Assistance Dog Users (Flanders, Belgium)

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Introduction: The COVID-19 pandemic has posed significant risk of infection, to humans. COVID-19 restrictions were introduced, to control the spread of infection. The aim of this study is to investigate the impact of COVID-19 restrictions, on assistance dogs and their users.

Methodology: A Citizen Science Project began in December 2020. The online application allowed assistance dog users to share their experiences and thoughts regarding the impact of COVID-19, on assistance dogs and their users (<https://www.biaat.be>).

Results: Between December 2020 and 26 January 2021, the study received 29 valid responses, addressing 131 issues. These included; 19 guide dog users, 8 mobility assistance dog users, and 2 psychiatric assistance dog users. Assistance dogs promote increased independence. Since the pandemic started, most assistance dog users (62%) reported going out less. The main reasons for this change are;

(1) Dogs are not trained to social distance (45%), (2) Guide dogs usually go directly into the shop and are not trained to find a queue (35%), (3) Locating sanitizing gel is challenging for dogs and may be aversive for some (28%), (4) The altered layout of shops (24%), (5) Face masks may cause communication to be more difficult for dogs to interpret (21%).

There have been positive experiences. Three respondents (10%) found social distancing prevents strangers from petting their assistance dog. Three (10%) respondents did not experience any change.

Principal conclusions and implications for the field: These first results indicate both positive and negative impacts of Covid-19 restrictions on assistance dog users and on their dogs. As COVID-19 restrictions continue to be a feature, globally, the development of an online platform/application, which promotes the exchange of experiences, and possible helpful information and advice, may provide support for assistance dog users, in maintaining the welfare of their dog and their independence, as a team.

Does Pet Ownership Mitigate Perceived Difficulties of University Students in the Pandemic of COVID-19?

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Introduction: COVID-19 caused great difficulties in many people's daily lives, including university students. This study examines whether having a pet influences the moods of university students.

Methodology: Students majoring in animal science answered a questionnaire that included demographic data, pet ownership status (any type of animal), attachment to their pets¹, whether they lived with family, perceived difficulties from COVID-19, ways of relieving stress, and Profile of Mood States 2 (POMS2) results. Stepwise multiple regression analyses were conducted to identify factors related to the Total Mood Disturbance (TMD) score of the POMS2.

Main results: 181 students answered the questionnaire (mean age 19.4; female 67.5%; pet owners 50.7%). In the regression model, TMD was used as the outcome variable. Perceived difficulties from COVID-19 (1), use of sleep to relieve stress (2), and having a pet (3) were significantly correlated with TMD and served as the predictor variables ($R^2 = 0.18$; $F = 13.09$, $df = 3$, $p < 0.001$). The first two variables were positively related to TMD (1: $\beta = 0.28$, $p < 0.001$; 2: $\beta = 0.24$, $p < 0.001$), while having a pet was negatively related to TMD (3: $\beta = -0.20$, $p = 0.005$). Attachment to their pets and whether they were the main caregiver were not chosen as predictor variables.

Principal conclusions and implications for the field: This study showed that having a pet has a positive impact on the mood of university students majoring in animal science during the COVID-19 pandemic. Further study is required to determine whether this result applies to the public and whether it extends beyond the current COVID-19 situation.

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2020 and the Aporia of Human Love for Animals: How Bushfires and Isolation Highlighted and Changed Contradictions in Human-Animal Entanglements as Expressed in Australian Poetry

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Introduction: 2020 was a revealing year for human-animal relationships in Australia. Devastating bushfires produced global sympathy for wildlife yet government sanctioned environmental destruction continued. In pandemic isolation people turned to some animals for companionship while continuing to kill and eat other animals. This paper examines how these changing and contradictory human-animal entanglements were expressed and highlighted in Australian poetry.

Methodology: A range of poetry regarding human-animal relationships produced and published in Australia in 2020 was analysed within the context of environmental events and the pandemic.

Main results/findings: Expressions of human-animal kinship and care, and the conflict of animal use and abuse in Australia were evident in poetry published in 2020. For those with immediate relationships caring for animals affected by the bushfires, and for those expressing multispecies compassion and desire for connection from a distance, poetry provided an outlet for and exploration of intimate attachments and ideals.

Principal conclusions and implications for the field: As reflected in Australian poetry in 2020 devastating bushfires produced global sympathy for wildlife prompted by photographs of 'iconic' Australian animals fleeing through smoke. Australia's internal compassion for its iconic wildlife was less clear, with inadequate government responses, and ongoing environmental destruction, with considerable public empathy left directionless, undermined by anthropocentric considerations. Closer to the crisis, human compassion for animal suffering prompted active rescue responses and care, building human-animal intimacy and connections through wildlife workers, concerned individuals, and communities. The pandemic quickly concentrated public attention on anthropocentric concerns: distrust of 'livestock' and 'wild' animals as possible sources of contagion, support provided to humans by 'companion' animals, reclamation of urban spaces by animals, and the isolation of zoo animals. Human interest in multispecies entanglements seemed to shift from outward interest to inward attention, resulting in more distant and more intimate human-animal relationships being expressed in poetry.

Pandemic Puppies - How COVID Has Fueled the Illicit Puppy Trade

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Introduction: The demand for puppies has dramatically risen since Coronavirus hit. Sadly, low welfare puppy dealers are increasingly using the pandemic as an excuse for the public not to follow recommended guidance.

Methodology: 3,025 respondents took part in a Scottish SPCA survey that was conducted following reports of significant spikes in interest in online searches to purchase puppies during the 2020 lockdown.

Main Findings: 84% of Scots do not think it is safe to buy a puppy online. 15% of Scots believe they may have purchased a puppy from someone who is not a responsible breeder. Of those who felt they had been duped, 45% said they were unable to get paperwork or information on the puppy. 24% said they were told they could not meet the mum of the puppy they were buying, whilst 23% said their puppy became unwell or died shortly after purchase. 35% of Scots said they were not confident they would be able to tell the difference between a responsible breeder and a puppy dealer. The survey also revealed 20% of people think it is very important they get a puppy quickly once they have paid for it, compared to 11% who think it's not important at all.

Principal Conclusions and Implications for Field: There tends to be a spike in interest in buying a puppy during the school holidays. Combined with lockdown, many people being at home more and a lack of supply from responsible breeders, it has been a perfect storm for puppy dealers and traders to profit. Between September 2020 and January 2021 the Scottish SPCA has seen 134% increase in calls to its animal helpline to give up unwanted animals with a 103% increase in calls relating to specifically unwanted dogs. Will we now see a big influx of unwanted pets?

The Impact of COVID-19 Restrictions on Adopted Dog Owners Use of Post Adoption Support Services for Problem Behaviours in England

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Dogs Trust, London, United Kingdom

Introduction: Dogs Trust runs an in-house behaviour support service for all owners adopting dogs from UK centres. This study examined how restrictions implemented by the UK government in response to the COVID-19 pandemic affected the use of this service by owners.

Methodology: Inbound calls for behaviour advice in England were analysed across four phases relating to the level of restrictions imposed: 'control' (without restrictions 31/01–11/03/2020); 'pre-lockdown' (precautionary guidelines 12/03–22/03/2020); 'lockdown' (28/03–12/05/2020) and 'eased restrictions' (13/05–31/05/2020). Behaviour problem data were coded using pre-defined categories. The number of calls per day for most commonly reported behaviours were compared across phases (Poisson Generalised Linear Model).

Main Results: In total, 430 inbound calls were made during this time period. The number of calls per day was 6.0 in 'control', 2.7 'pre-restriction', 2.2 'lockdown' and 2.8 'eased restrictions'. The three most reported behaviour categories were 'Aggressive-related behaviours' (ARBs; n=222), 'Separation-related behaviours' (SRBs; n=71) and 'Difficult to walk on lead' (DWL; n=66). Compared to the control period, calls for advice for ARBs reduced significantly in lockdown and eased restrictions periods ('lockdown', $B=-0.79$, $p<0.001$, $Wald=22.7$; 'eased restrictions', $B=-0.62$, $p=0.004$, $Wald=8.23$); SRBs reduced significantly across all periods ('pre-lockdown', $B=-1.11$, $p=0.034$, $Wald=4.48$; 'lockdown', $B=-1.21$, $p<0.001$, $Wald=16.6$; 'eased restrictions', $B=-1.09$, $p=0.007$, $Wald=7.22$) and DWL significantly decreased during lockdown only (DWL 'lockdown', $B=-0.78$, $p=0.009$, $Wald=6.80$).

Principal Conclusions and Implications for Field: These findings suggest that use of the post adoption support service overall declined during restrictions, and calls for the three most common behaviour problems decreased with increased levels of restriction. This effect may be caused by changes in dog-owner interactions during lockdown (e.g. not leaving dogs alone, reduced walking off lead) and/or changes in advice-seeking behaviour during this period. This study provides ongoing monitoring for evaluating the impact of the coronavirus pandemic on dog welfare.

Service Dog and Disabled People: When COVID-19 Changes Their Relationship

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Introduction: Disabled people have the opportunity to own service dogs, to help them in their daily life to alleviate their difficulties, leading to the development of strong relationships between them. Covid-19 pandemic raises a particular social context, decreasing social contacts and modifying human relationships. We hypothesis that this period, in particular Covid-19 'lockdown', could change the human-pet relationship, and thus the disabled people-service dogs' bond.

Methodology: We conducted a survey during the first Covid-19 'lockdown' in France, when people were constrained to stay at home. Handi'chiens is a non-profit organization offering service dogs for more than 30 years. Using its mailing list, we contacted disabled people living with their service dog. The online survey consisted of 5 categories of questions: (1) general information, (2) relationship to service dog, particularly using Monash Dog-Owner Relationship Scale, (3) other animals at home, (4) COVID context for subjects, (5) daily life; both in general and during lockdown.

Main Results: 70 dyads (disabled people and service dog) participated to our survey (47♀/23♂; mean age=37.4±15.3 years old). COVID-19 context modified relationships between subjects and their service dogs. Compared to general context, (1) both Perceived Emotional Closeness and Perceived Costs subscales were significantly higher in COVID-19 context ($p<0.05$), while (2) Dog-Owner Interaction subscale was significantly lower in COVID-19 context ($p<0.001$). Some others factors involved in the survey modulated the results.

Principal Conclusions and Implications for Field: Our study confirmed that service dogs, as other pets, constituted a source of emotional support in the Covid-19 lockdown context. But, for these disabled people, service dogs would also conduct to a costlier relationship. This original study highlights that, in extreme situations, characteristics of a human-animal relationship can be exacerbated, both in its good and its bad sides. Applications for organizations delivering service dogs will be discussed.

Perceived Emotional Closeness, Costs and Interactions with Pet Dogs and Cats During the Official Confinement for Covid-19 in an Italian Sample of Owners

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Considering time, activities and space that people share with their pets, the official confinement for reducing the spread of Covid-19 has likely affected both. This study aimed at evaluating whether confinement also had an impact on the relationship between people and their pets.

An online survey was completed by 572 cat owners and 1410 dog owners living in Italy, whose demographic characteristics were not statistically different (mainly females: 78.0%; mainly 36-65 years old: 54.7%). The questionnaire included demographic questions, as well as a modified version of the Cat/Dog-Owner Relationship Scale C/DORS. For each item of the C/DORS, response options were modified to assess how that feature was changed compared to a pre-covid period (in a 5-point scale from “much more” to “much less than before”).

An overall look at all the 28 items of C/DORS reveals a slight improvement in the relationship between respondents and their pets. Items related to interactions were the most strongly positively affected. The perceived emotional closeness was moderately positively affected, especially for “My pet helps me get through tough times”. The perceived costs items were only slightly positively affected: e.g. perceived financial cost for dogs and difficulties in looking after cats were slightly decreased compared to before the confinement.

For 18 out of 28 items dog and cat owners responded differently, with the latter scoring higher for the majority of items related to emotional closeness and interactions ($p < 0.05$). However, more frequent and close interactions (petting, cuddling, kissing) may be over-stimulating for some cats.

These results confirm that pets represent an important social partner for their owners, and their role as companion and support emerges even more clearly in difficult times. Attention must be paid to protecting the welfare of both parties when pets may become surrogates rather than partners.

“My Companion Throughout the Pandemic” – the Subjective Importance of Human-Animal Relationships During COVID-19

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Introduction: Social distancing and isolation are key aspects of the COVID-19 pandemic. The negative impact of these factors on mental health (Kecojevic, 2020) is well-known. Evidence shows that relationships with pets can positively impact human’s wellbeing. The present study aims to investigate links between pet ownership and psychological parameters like loneliness, isolation, depression and quality of life.

Methodology: Pet owners and non-pet owners (n=122) were surveyed online, using qualitative methods regarding the subjective assessment of the importance of pets during the pandemic. In addition, quantitative standardized tests (Lexington Attachment to Pets Scale, Loneliness Scale, Social Support Scale, Beck Depression Inventory-II, WHO Quality of Life Questionnaire) were used. Data analysis included explorative methods, correlations, t-tests and Cohens d.

Main results: Preliminary results show that a total of 74.29% pet owners subjectively attribute a positive role to their pet during the pandemic. In this context, 49.3% pet owners for example indicate a positive effect of the pet on the family and 42% state a positive influence on their physical fitness. Interestingly standardized measurements show no differences between pet owners and non-pet owners regarding depression levels ($t(117)=-.865, p=.390, d=-.015$), loneliness ($t(120)=.767, p=.444, d=0.14$) and social support ($t(121)=-.811, p=.419, d=0.14$). Moreover, data show no significant differences in different subscales of quality of life.

Principal conclusions and implications for the field: Findings suggest that people perceive their animals as emotional support during the COVID-19 pandemic. Standardized tests draw a different picture regarding the effect of the relationship with pets on humans’ wellbeing. These findings indicate a gap between subjectively experienced importance of animals and the actual impact on standardized parameters, which seems to fit into the psychological knowledge on perceptions. Furthermore, the question arises, if the limit of such standardized instruments regarding “objective” evaluation of the human-animal bond has been reached.

"Dog Walking Is a Risk Factor for SARS-CoV-2 Infection in Humans": A Case of Giving a Dog a Bad Name

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Introduction: A recent observational study on COVID-19 (Rodríguez-Barranco et. al., 2021), found dog walking to be associated with Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) infection (OR = 1.78; 95% CI: 1.03 to 3.07, $p = 0.037$). The authors concluded "These results point to living with dogs as a strong risk factor for COVID-19 infection." Additionally, they suggested that "cross-infection between humans and dogs" or "the concept of dog as a vehicle, increasing exposure to the virus derived from behaviour and unhygienic habits of dogs on the streets and their subsequent return home." might explain the finding. This presentation examines this study for the non-epidemiologist, highlighting factors to be considered when judging the acceptability of its findings, and provides questions to be asked when evaluating findings from any observational study on human-animal interactions.

Methodology: Using non-technical parlance, we examine the study through the lens of basic, yet rigorous, epidemiologic principles of study design, analysis and inference.

Main findings: The study leaves unanswered questions surrounding a) whether SARS-CoV-2 infections preceded or followed dog walking, b) whether all persons considered to be SARS-CoV-2 infected were actually infected, and c) whether the observed association could not have resulted from the effect of variables not considered by the authors. Finally, the authors' explanation of the findings seems implausible in light of current scientific knowledge of SARS-CoV-2 transmission to humans.

Principal Conclusions and Implications for Field: Any conclusion that dog-walking is a risk factor for SARS-CoV-2 infection is unwarranted based on the study, as presented. Observational studies on human-animal interactions should be scrutinised according to epidemiologic principles in order to determine the validity of their conclusions.

References: Rodríguez-Barranco, M., et. al. (2021). The spread of SARS-CoV-2 in Spain: Hygiene habits, sociodemographic profile, mobility patterns and comorbidities." *Environmental Research*. <https://doi.org/10.1016/j.envres.2020.110223>

Evaluating the Effects of COVID-19 Restrictions, on the Welfare and on the Behaviour of Puppies and Dogs and the Impact on Human-Dog Relationships, in Ireland

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Introduction: COVID-19 restrictions, were introduced in Ireland on 12/3/2020. The demand for puppies/dogs increased, as many people worked from home and children were home-schooled. It is hypothesised that the welfare and behaviour of dogs may be impacted negatively by COVID-19 restrictions, impacting the human-dog relationship.

Methodology: Two online surveys were conducted (August-2020), targeting veterinarians and behaviourists, to investigate attitude/motivation in acquiring a puppy/dog, and behavioural issues presented. Telephone interviews were conducted with the DSPCA, Dog's Trust and with three Italian shelters for comparison purposes. An Garda Síochána provided information, in relation to dog theft and to domestic abuse, which is associated with animal abuse.

Main results/findings: The responses by veterinarians (n=7) included; 71.4% felt that some owners believed that a puppy/dog might entertain their children, 42.9% felt that dog-walking had become popular/a social-status, 42.9% felt concerned regarding socialisation issues, 14.28% noted aggression in puppies, 57% felt concerned regarding the owner's ability to finance their dog's care, 85.7% noted more puppies presenting in practice; 51.1% noted more dogs. The responses by behaviourists (n=3) included; that owners primarily consulted the internet regarding training/behaviour, an increase in behavioural issues, notably fear, aggression and complex issues. The DSPCA and Dog's Trust experienced a demand for puppies, similar to the Italian shelters. Statistics provided by the Gardaí clarified increased dog theft and a 20% increase in domestic abuse.

Principle conclusions and implications for the field: In conclusion, the welfare of dogs adopted during COVID-19 restrictions may be compromised through lack of/inadequate research/planning, socialisation/training, introduction to and supervision with children, and sub-standard breeding facilities. Increased domestic abuse, may predict an increase in dog abuse. The status of dogs has increased; those usually maintained in back gardens may benefit from increased interaction/walks.

Living Alone in the Time of COVID: Are People with Cats Less Lonely?

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Loneliness is likely to be increasing because of the COVID-19 pandemic. One recent study (Ratschen et al) found that pet owners had smaller increases in loneliness during lockdown.

This study examined loneliness in a small convenience sample of people living alone (n=52). Half (n=26) were cat owners. The survey was developed using Google forms. Links were posted in Facebook groups for cat owners and for people living alone. Questions included demographics, effects of the pandemic, and how people are coping. Loneliness measures included subjective ratings and scores on the Three-Item UCLA Loneliness Scale (2004). Cat owners were asked if their experience of the pandemic would be different without their cats.

A total of 57 people responded but 5 did not meet the criteria. The age range was 26 to 79 years, 49 (94.6%) were female, and 45 (86.5%) were white. Thirty (57.6%) were from the U.K. and 20 (38.4%) were from the U.S. A 2x2 factorial ANOVA of the subjective loneliness ratings showed that pre- and post pandemic ratings were similar for people with and without cats. However, those without cats showed a significant increase in loneliness from before the pandemic to the present ($F(1,100) = 10.73, p < .01$). Scores on the 3-point scale showed no significant differences in loneliness. However, younger people (26-49) were somewhat more lonely than older people (50-79) whether they had a cat or not.

When asked whether the pandemic would be different without their cats, cat owners commented that, "It would be even lonelier," "I would feel completely alone and have nothing to care for," "I wouldn't get up in the morning," and "I don't know how I would have survived the pandemic without her."

Findings suggest that cat companions may help people to cope with loneliness during the time of COVID.

The PSDA Animal Wellbeing (PAW) Report: Animal Welfare Surveillance Data Over Ten Years and the Impact of COVID-19 on Pets and their Owners

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Introduction: Published annually since 2011, the PSDA Animal Wellbeing (PAW) Report provides UK companion animal welfare surveillance to identify trends and priorities, and to promote and monitor change.

The People's Dispensary for Sick Animals (PDSA) is the largest UK veterinary charity that provides free and low cost veterinary care to the sick and pets through a nationwide network of 48 Pet Hospitals.

The 2020 report identified trends over the last decade in the provision of the 5 Welfare Needs of UK pets. Additionally, a post-lockdown survey provided early insights on the impacts of Covid-19 restrictions on pet wellbeing.

Methodology: The surveys were conducted with YouGov, using their nationally representative panel of over a million adults in the UK. Data has been collected from over 83,000 respondents over the last ten years and analysed using generalised linear models. Pre and post-lockdown data were analysed using Z-tests.

Main results/findings: Regarding COVID-19, 49% of owners said their pet has been 'a lifeline' during lockdown. However, 10% of owners are increasingly worried about how they'll pay for veterinary bills if their pet falls ill or gets injured.

8% of owners feel their dog has put on weight since the beginning of lockdown, which is likely associated with the 10% of owners feeding more human food in lockdown.

20% of dog and 23% of cat owners have seen new behaviours during lockdown.

Our longitudinal data showed that cats that live indoors only increased from 15% in 2011 to 26% in 2020 (t -value=-4.34, p =0.00). Rabbits fed muesli mix decreased from 49% in 2011 to 18% in 2020 (t -value=3.02, p =0.00).

These are only a small summary of our results, and we have a wealth of data surrounding animal welfare and the human-animal bond that is used to inform government research, policy and legislation and to inspire innovative approaches in veterinary clinical practice.

Innovative Study Designs, Methods and Outcomes

How Do Children with ASD Interact with a Service Dog During First Encounter?

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Studies have demonstrated the various benefits of animals - especially pet and service dogs - for children with Autism Spectrum Disorder (ASD). However, not all children with ASD display the same interest towards animals. Despite its pivotal role in the relationship children with ASD may establish with animals and its benefits to children's socio-emotional development, no study has investigated how children with ASD interact with service dogs using direct observation. Thus, the aim of the present study was to characterize how children with ASD interact with service dogs during a first encounter.

Twenty children diagnosed with ASD were observed in a standard situation during first encounter with a service dog. Ethological methodology was used to analyze video recordings of periods of free interaction. Scan sampling was applied for the coding of child's distances from other individuals, gaze orientation and care behaviors. Focal sampling was applied to extract the occurrences and durations of contacts with the dog, as well as the occurrences of child's vocalizations and gestures toward the dog.

Based on factorial analysis followed by cluster analyses, three main behavioral profiles of interaction were distinguished: Proximal and contact, Distal and command, Non-proximal and rejecting the service dog. Interestingly, results seemed to highlight strong interindividual variations according to age and ASD severity: younger children interacted less with the service dog (both physically and distally) and displayed more rejection behaviors; while more severe children seemed to resort on a smaller behavioral repertoire.

This study is, to our knowledge, the first characterization of how children with ASD interact with a service dog during a first encounter, and it might provide valuable information for professionals, notably relatively to the importance of carefully considering the child's attraction toward the animal as well as parameters such as child's age and ASD severity.

Relationship Between Visual Exploration and Interaction in Child with ASD During First Encounter with a Service Dog: An Exploratory Study

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While the benefits from the interaction with animals for people with Autism Spectrum Disorder (ASD) is well documented, the source of those benefits and its underlying mechanisms are still a matter of debate. The current literature highlights that among the possible explanatory leads, one would be that the pattern of visual exploration used with animals differ from the one used with human agents in children with ASD. Thus, how children with ASD encode information about animal and interact with it deserves special attention. This exploratory study aimed at exploring the relationship between the children with ASD's visual attention to service dog and their interaction with it.

Six children with ASD were observed in a standard context of real interaction during first encounter with a service dog. Video recordings of children's interaction with the service dog during free interaction were performed, coupled with oculometric measurement using eye-tracking glasses, in order to provide a fine measure of the children with ASD's visual attention while interacting with the service dog. Behavioral coding of the video recording was performed in order to extract the behaviors expressed by the child during the interaction with the service dog.

Significant correlations were observed between the child's visual attention towards inanimate (service dog accessories/board games) or social stimuli (parent/health professional) with certain of his/her behaviors during the interaction with the service dog. The more the child with ASD paid attention to social stimuli, the greater the child with ASD's was attracted and interacted with the service dog.

This exploratory study seems to highlight that a link might exist between visual attention and interaction behavior in children with ASD with the service dog, but also emphasize the importance of carefully considering this parameter in future studies as well as for professionals working with service dogs.

Old Age Dogs - Using a Novel Health Informatics Approach to Understand How They Are Cared for in Primary Veterinary Practice

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Introduction: There is no consensus on the age at which dogs are considered 'old'. However, dogs are living longer, increasing the risk of diseases associated with old age and reduced quality of life. A novel data science approach was used to describe when veterinarians consider dogs old and identify common reasons for consultations of old aged dogs.

Methodology: Using 8 million anonymised electronic health records (EHRs) between 2014-2020, from a sentinel network of UK veterinary practices, validated regular expressions were used to identify EHRs where the words senior, geriatric, elderly, ageing, or old were used by the veterinarian in the context of old age. A random subset of these (N=834) was further classified based on reasons for presentation using a modified World Health Organisation classification (ICD-10).

Main results/findings: The median age that veterinarians used different ageing-related words varied, including: 'senior' (10.7y), 'geriatric' (11.8y), 'ageing' (12.5y), 'old' (12.9y), and 'elderly' (14.0y). When these words were combined, for the top five breeds, the median age of Jack Russell Terriers was significantly older (14.1y; $P < 0.01$) compared with the Border Collies (12.7y), Springer Spaniels (12.3y), Labrador Retrievers (12.2y) and Cocker Spaniels (11.5y). Most dogs presented for multiple reasons (median=2, range=0-10); consultations most commonly included discussions of weight (35%), musculoskeletal (33%), dental (31%), integumentary (28%), and digestive (22%) problems. Median age varied by classification ($P = 0.001$) including weight (11.9y), digestive (12.8y), musculoskeletal (12.9y), and dental (13.0y). The five most common breeds also differed in median age at consultation for musculoskeletal ($P < 0.01$), digestive ($P = 0.024$), and dental ($P = 0.025$) problems.

Principal conclusions and implications for the field: Veterinarians use various ageing-related words at different ages, and there is evidence of breed differences in medical issues associated with old age. These findings could inform the development of tailored health messaging for owners and veterinarians caring for old dogs.

College Campus Cat: Exploring PetPace Collar Data and Survey Data to Measure Physiological Responses and Physical Activity During Campus Visits

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Introduction: Smartcollars function as non-invasive tools to measure animals' physiology and activity in naturalistic settings. The current study describes PetPace smartcollar data collected in a cat with owner-provided survey data to compare data collected in the context of campus visits with the cat's behavior at home. First, heart rate variability (HRV) and physical activity are compared between campus days and days at home. Second, associations between smartcollar data and survey data are explored.

Methodology: Continuous 24-h smartcollar data and daily survey data were collected during 55 days, of which 3 days during campus visits. The smartcollar provided continuous (i.e. every 2 to 15m) data about HRV and activity (except 2-3h charging time every 3-4 days). HRV was calculated using vasovagal tonal index and activity was measured with a tri-axial accelerometer. The owner provided survey data at the end of each day about perceived stress and activity in the cat. Smartcollar data were aggregated on the day level and merged with the survey data.

Results: First, the collar measured higher HRV, indicating lower stress, on campus days (Mdn = 9.2) compared to days at home (Mdn = 9.0); the distributions differed significantly (Mann-Whitney U = 26.00, $p < 0.05$). Second, interestingly, we found no significant Kendall's tau-b correlations between collar-measured and survey-reported activity ($\tau_b = .10$, $p = .38$) or stress ($\tau_b = .18$, $p = .16$).

Conclusions: While exploratory, our study is the first that examined associations between a cat's 24-h physiological data and daily survey data collected in home and campus contexts. Since significant differences were found between HRV at home and on campus, which were not explained by survey data, this study provides evidence that methodological approaches to examine campus cats' stress may benefit from incorporating HRV and activity through smartcollar measurement rather than through survey data alone.

Animals and Social Attention in Autism-An Eye Tracking Analysis

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Introduction: Social attention deficits accompanied by greater attention to inanimate objects are well-documented in Autism Spectrum Disorder (ASD). Possible explanations include social reward processing impairments or an aversion to social stimuli. However recent evidence from neurobiological and eye-tracking paradigms suggests potential differences in the processing of human and animal faces in ASD, with a significantly greater visual attention to animals. These findings though intriguing, merit a more detailed examination particularly in terms of whether these effects are sustained across stimulus variations.

Methodology: We expanded the static faces paradigm used in similar research insofar, to include a stimulus variation with higher complexity i.e., social scene images. Differences in visual attention were examined in response to static images of social scenes comprising humans or animals (08 human and 08 animal images) using an eye tracking paradigm. 43 children (ASD n=23; TD n=19) participated in the study, with gaze fixations examined across five regions of interest (face, body, object and screen).

Main Results: Results revealed significantly greater overall social attention in TD children when compared to children with ASD for both human ($p \leq 0.05$) and animal ($p \leq 0.001$) stimuli. Within children with ASD a significantly greater visual attention was seen to faces within animal social scene images as compared to human social scene images ($p \leq 0.01$) whereas a greater attention to objects was seen in the latter ($p \leq 0.05$). Animal faces thus elicited greater visual attention in children with ASD when compared to human faces.

Principal Conclusions and Implications: The results reiterate that social attention deficits in ASD may not be uniform across species and these differences may persist across stimulus types. It adds to the neurobiomarker evidence base of the potentially greater social reward processing and lesser social anxiety underlying animal stimuli and has important implications for ASD intervention planning.

Can Eye Movement Desensitization and Reprocessing (EMDR) Be an Effective Intervention for Traumatized Animals with Excessive Fear and Anxiety? a Review on the Validity of Post-Traumatic Stress Disorder (PTSD) and the Applicability of EMDR as an Intervention in Animals

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Introduction: Eye Movement Desensitization and Reprocessing (EMDR) is one of the most effective therapies for treating post-traumatic stress disorder (PTSD) and trauma in humans, among other psychiatric problems. EMDR has been found to treat adults, intellectually disabled individuals, adolescents, children, infants, and recently, animals. Studies show invasive EMDR is effective in treating PTSD in animals, and EMDR is currently being practiced in the clinic on animals, but no studies to date illustrate the efficacy of non-invasive EMDR in animals. This paper reviews the psychophysiological and neurobiological correlates of PTSD and EMDR, as well as methods of using EMDR in various populations as evidence for the feasibility of EMDR use in animals in the clinic.

Methodology: Publications from 1989-2019 were reviewed for mechanisms underlying PTSD and EMDR and clinical applications among various populations. Study designs included systematic reviews, meta-analyses, correlational, case-control, experimental, and randomized control trials, among others.

Main findings: Psychophysiological and neurobiological correlates of EMDR (de-arousal shown by increased parasympathetic activity; increased inhibition of amygdala) are mostly reversed from those in PTSD (increased arousal shown by decreased parasympathetic to sympathetic tone ratio; decreased regulation of amygdala by frontal lobe), though neurobiologically there exists some contradictory evidence. As PTSD and EMDR both involve the limbic system (including amygdala), which is also present in animals, there is good evidence that EMDR can successfully be done in animals in the clinic.

Principal conclusions/implications: Our results would provide scientific evidence for the effectiveness of EMDR in animals and could make EMDR a more common, cheaper, and quicker therapeutic method for treating behavioral problems in animals. It could also provide insight on the working mechanisms behind EMDR, depending on how EMDR is conducted and what the results are. Knowledge of working mechanisms could help humans in developing more effective protocols for traumatized patients.

Animal Socialization in Experiments: A Framework for Assessing Human-Animal-Technology Interaction in Research

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The reproducibility crisis in several behavior and psychology fields pushed researchers to improve assessment and reporting practices. Examples are the guidelines to report *in vivo* experiments (ARRIVE) and, complementary to ARRIVE, the STRANGE framework. The latter describes points to be aware of in animal research, which include social background, rearing history, habituation, and experience. This study refines ways to reflect upon and to report interactions between humans and nonhuman animals alongside technology-use. I discuss the case of ape experiments in computer and non-computer settings (chimpanzees; *Pan troglodytes* and bonobos; *Pan paniscus*). This research is part of an etho-ethnography in three research facilities (Asia, Europe, and North America), as well as visits to other research sites to assess experimental set-ups (approx. 16 months). Socialization is understood as the learning of activities or behaviors of a given social environment, which may include laboratory life. When comparing how apes learned various protocols within and across institutions, four components appeared combined in different formats: *Individual, conspecific, interspecies, and tech-mediated* learning. Animal testing in individual and conspecific form was observed in these sites as: (a) **tech-mediation (T)**, e.g., computer test in human absence (b) **human-animal mediation (HA)**, i.e., direct human interaction within protocol (c) **human-tech mediation (H-T)**, e.g., human flexible adjustment of computer tests to an animal's motivation but without direct interaction (d) **human-animal and human-tech mediation (HA-HT)**, i.e., direct interspecies interaction and human technical adaptation (e) **animal-tech, human-animal, and human-tech mediation (AT-HA-HT)**, i.e., similar to HA-HT but with the animal's choice of how to use technology (e.g., communication purposes). Overall, conceptualizing the animal research laboratory as a rich anthropogenic and technological environment is vital to understand in depth how animals learn to navigate set-ups and protocols. This study enhances the STRANGE framework and, thus, is likely to help improve replicability in science.

Leveraging Technology in Human-Animal Interaction Research

A Pilot Study Investigating Human Interpretation and Behaviour in the Presence of a Virtual Reality Dog Model (Dog Assisted Virtual Environment) Displaying Aggressive and Unresponsive Behaviours

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Introduction: Dog bites are a serious public health matter that negatively impacts the health and welfare of dogs and humans. However, limited research has been conducted on the assessment of human behaviour with a real aggressive dog due to the risk of physical and/or psychological damage. This study aims to assess and interpret human behaviour towards an interactive virtual dog displaying a range of aggressive behaviour.

Methodology: An interactive virtual reality (VR) dog model was developed for the HTC Vive Pro with the assistance of behavioural experts. Two interactive modes were implemented i) Aggression: behaviours based on the canine ladder of aggression and dictated by user movement/location; ii) Unresponsive: passive behaviours (stand, sit, sniffs the ground, lick lips, head moves) not dictated by participants movement/location. Sixteen university students took part in two five-minute tasks and were randomly assigned to two groups starting with either the unresponsive or aggressive dog first. Participants were instructed to explore an area (6x2m) resembling a living room. Participants starting position was 4.6m away from the closest point to the dog. Coordinates of the dog and participant were recorded (5hz). Comparisons between the closest distance a participant got to the dog between scenarios was analysed per group using a Wilcoxon signed-rank test. A presence questionnaire recorded participants feeling of 'being there'.

Main Findings: Participants head and hands moved significantly closer to the unresponsive dog compared to the aggressive model for both groups ($p < 0.05$). Three participants were 'bitten' by the dog. Participant feedback and mean total presence scores indicated the experience was realistic (aggressive (159/203), unresponsive (149/203)). Body movements and perceived emotional/motivational aspects were most often reported when describing behaviours.

Conclusion: This unique VR dog model displays aggressive behaviours which can be used to understand human behaviour around dogs. Participants stayed further away from an aggressive dog.

Imagining Objects as Dogs

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Heider and Simmel (1944) showed that when viewing a video of abstract symbols moving, humans regularly attribute human-like intent to the objects. Harris, van Etten, and Gimenez-Fernandez (2020) found that more anthropomorphism was present when movements could be interpreted as harming rather than helping behaviors. In the present study, 313 participants watched 6 videos of abstract objects showing random movement, goal-directed movement, or theory of mind movement. They were told that the objects were dogs, humans, robots, or were given no information. Participants then described what happened in each video, rated the realism of the movements, and rated the characters in terms of humanness, perceived intelligence, and mind attribution. One-way ANOVAs with label as the independent variable yielded no significant differences in word count for any of the videos, showing participants were equally able to generate a narrative for animals as for other entities. There also were no significant differences for intelligence ratings. However, there were main effects ($p < .05$) for label on realism ratings (5 videos), humanness ratings (3 videos), and mind attribution (3 videos). For realism, 5 of 6 videos labeled dog were rated as least realistic. For humanness ratings, specific video predicted the difference in ratings for the conditions such that in chasing objects, dogs and humans were rated equally and both more human than the other conditions. For dancing and mocking shapes, those labeled as dogs were rated as least human. Mind attribution also varied by video such that in random and chasing videos, dog and human labels yielded similar ratings, whereas in a dancing video, dog label yielded the least amount of mind attribution. These results suggest that humans maintain situation-specific mental schemas for dogs that can be used to anthropomorphize abstract objects, and that these schemas are independent of schemas for humans and robots.

Perceptions of Virtual Dogs Displaying a Variety of Behaviors

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Introduction: Previous research by Viaud-Delmon et al. (2008) has looked at using interaction with a virtual reality dog to treat dog phobia. Also, van Ooijen (2018) examined how the use of virtual pets in *The Sims* foster the construction of a hierarchy of classes of animals whose lives are given varying degrees of excluded moral concern.

Methodology: Seven short videos of a 3D virtual dog were created using *The Sims 3*, each showing a different dog body language; growling, barking, chewing on furniture, wagging tail, howling, cowering, and waiting. Videos also included sounds from the virtual dog. A total of 81 participants took a survey where they watched these video clips and ranked 7 adjectives on a 5-point scale based on how well they described the dog in that video. The adjectives were as follows; Happy, Friendly, Annoying, Sad, Scared, Aggressive, and Destructive.

Main Findings: One-way ANOVAs using type of video as the independent variable yielded significant differences for all 7 ratings ($p < .001$ for all). Happiness and friendliness ratings were unsurprisingly highest for the friendly video. However, friendliness ratings also were high when the dog was shown as barking. Annoyance and aggression were rated highest for the video displaying destruction. Sadness was highest for the howling behavior. Scared ratings were highest for the scared video and the video destruction video. Destructive behavior, which is most easily displayed in a video also yielded the strongest results.

Principal Conclusions and Implications for Field: This study's findings show that, even using short video clips of an animated dog, participants were able to accurately and consistently read the dog's body language. Simulations such as these can be used in further research when it is impossible to include a live dog or to investigate abuse behaviors that could endanger the dog.

Lifespan Perspectives on the Human-Animal Relationship

Euthanasia in Dogs in the UK; What Drives Decision-Making?

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Introduction: Successive dog ownership means that many owners endure the loss of several dogs during a typical human lifetime. Whether a dog is euthanased or dies unassisted, the loss of a pet can be particularly distressing for owners. Veterinarians describe euthanasia as “the best and the worst” of their clinical role. Understanding more about the levels and reasons for euthanasia in dogs may help to support owners by providing an evidential context for their decision. This study explores how dogs die in UK general practice, and what factors are associated with euthanasia decision-making relative to unassisted death.

Methodology: Deceased dogs during 2016 were identified from anonymised first-opinion veterinary clinical records in the VetCompass database. Deaths were categorized as euthanasia or unassisted. Canine demographic and cause of death data were extracted. Risk factor analysis for euthanasia versus unassisted death used multivariable logistic regression.

Main results: From 29,163 deceased dogs, 26,676 (91.5%) deaths involved euthanasia and 2,487 (8.5%) died unassisted. Using neoplasia as the baseline, 6/20 disorder groups had higher risk in euthanased dogs. The disorders most likely to end in euthanasia compared with unassisted death were poor quality of life, undesirable behaviour and spinal cord disorder. Conversely, traumatic injury, complication associated with clinical care and heart disease were most likely to end in an unassisted death. Bulldogs, Pugs and West Highland White Terriers had increased risk of unassisted death compared with Labrador Retrievers. No breeds had significantly increased risk of euthanasia. Deaths in older dogs were much more likely to involve euthanasia than deaths in younger dogs.

Principal conclusions and implications for the field: Humans often rely on factual data to resolve cognitive dissonance around emotive decisions. A large majority of owners will face euthanasia decisions and these results can support veterinarians and owners to better prepare for such an eventuality.

Optimising Animal Welfare Education for Children: A Delphi Study of Animal Welfare Educators

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Introduction: Animal welfare organisations have developed a range of educational programmes to prevent harmful behaviours to animals among children. However, there is limited published evidence on what animal welfare education interventions work and why? This study used Delphi methodology to gather expert practitioner views on animal welfare education practice and to generate consensus and what works to prevent childhood animal harm.

Methods: Animal welfare education experts were engaged in a three-stage online Delphi study. 31 experts representing 25 animal welfare organisations participated in the Round 1 survey. 84% of the original sample participated in Round 2 that presented statements about the aims, content/design, outcomes of interventions (based on Round 1 qualitative responses) to identify consensus about effective animal welfare education approaches. Round 3 gathered participants reflections on the findings.

Main results/findings: With consensus at 75% agreement, we identified consensus that lack of knowledge was a key factor in animal cruelty (96.2%), that school-aged children (96.2%) and vulnerable children (92.3%) should be the target recipients, that interactive activities (84.6%) in a structured delivery plan (76.9%) with flexibility to meet individual needs (88.4%) are important. However, the study revealed lack of consensus in many areas, a lack of precision around key terms, and a lack resource for evaluation.

Principal conclusions and implications for the field: While children, including vulnerable children, are a clear focus for animal cruelty prevention, there was a high focus on knowledge development, to the exclusion of other factors that might be risks for childhood animal harm. There was also a lack of precision about what educational activities might work and why, and a concern about resources required for evaluation. The findings are being used to co-produce an Animal Welfare Education for Children Toolkit to enable practitioners to follow evidence-based guidance when developing their interventions for children.

Children's Moral Concern About Animals and Ecosystems

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Introduction: Children's moral concern about animals has been linked to type of animal, empathy and age. Few studies have explored interconnections between children's moral concern for ecosystems and animals. To address this gap, this exploratory study examined connections between children's moral concerns (unelaborated, anthropocentric, or biocentric justifications) for companion animals (CA), wild animals (WA), farm animals (FA) and ecosystems (ECO).

Methodology: Sixty-one children (38 girls; 23 boys; $M_{age} = 11.35$, $SD = 2.57$ range = 7– 15.9 years) completed a measure of empathy and were asked why it was not okay to harm animals and ecosystem. The mean differences in empathy by age (7-11 years vs 11.1-14.9 years) and gender were evaluated with t-tests. Differences in the distribution of justifications as a function of empathy, and age were tested with Pearson's chi-square test. Additionally, children's moral concerns about CA were crossed with children's concerns about FA, WA, and ECO.

Main results/findings: As a group, children's anthropocentric concerns were higher for FA (71.9%) and ECO (58.6%), while their biocentric concerns were higher for CA (63.9%); children's responses for WA were homogeneously distributed. Anthropocentric concerns for all types of animals decreased with children's age (and with higher empathy). Biocentric concerns about FA (younger-25%, older 34.9%), WA (younger-35%; older-55.2%) and ECO (younger-16.7%; older-26.3%) were related to higher empathy and older ages. As expected, children who reported higher percentages of biocentric concerns for CA also reported higher biocentric concerns for FA (younger-37.5%; older-39.1%) and WA (younger-60%; older-78.3%). No gender differences were found.

Principal Conclusions and Implications for the Field: This data suggests that age, empathy, and moral concern for companion animals might shape children's moral concern (i.e., the development of biocentric concern) for animals and ecosystems. This information can inform educational curriculums designed to promote moral concern about animals and ecosystems.

Protecting Human-Animal Relationships During Natural Disasters

Planning Principles for Animals in Natural Disasters: An Australian Perspective

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Introduction: Animals' place in disaster planning has recently been tested during Australia's 'Black Summer' bushfires, with the unprecedented loss of animal life emphasising connections between human and animal welfare. The National Planning Principles for Animals in Disasters are a publicly accessible tool designed to guide effective animal integration into disaster response arrangements. In this project, Australian organisations with a stake in animal emergency management were surveyed to examine awareness and implementation of these Principles in disaster planning.

Methodology: A national survey was distributed in emergency and animal management networks in late 2020. Analyses used SPSS to describe differences in implementation of the Principles in disaster planning, relating to owned animals, across organisation types and animal categories. Respondent descriptions of implementing the Principles were then categorised for further analysis.

Main Results: Stakeholders (n=137) worked in local government, emergency services, and animal-focused non-profits, interacted with animal owners (74.5%), and had oversight for animal management (78.1%), and understood emergency animal arrangements for their state or territory (73.0%). For stakeholders aware of the Principles (58.1%), half had implemented them (53.8%). Implemented Principles for creating plans most often related to welfare benefits to humans and animals from animal inclusion in plans, and to identifying responsibilities for animals. Principles relating to need for animal welfare consultation, acknowledging local government expertise, and use of accessible language were less often implemented. Disaster planning arrangements indicated a need to focus on prevention and recovery arrangements for animal welfare. Plans supported Principles for animal management logistical challenges in disaster response. However less implementation of formalised animal welfare support arrangements and plan testing requirements was seen.

Principal Conclusions and Implications for Field: Emergency animal management stakeholders see value in applying the Principles, although there is a need to further promote and monitor implementation of specific Principles in animal welfare planning arrangements.

Researchers, Communities, and the Public (Translational Approaches)

A Review of the United Nations Sustainable Development Goals (SDGs) as They Relate to the OneHealth and OneWelfare Initiatives for Enhancing Human and Animal Well Being

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Introduction: The United Nations Sustainable Development Goals (SDGs) were developed in order to advance human health and wellbeing in addition to environmental health and contain 17 broad goals. The SDGs are currently intended to be achieved by 2030, less than ten years from the present. The OneHealth initiative was created with additional growth from the initiative expanding into the World Health Organization and the OIE. The OneWelfare initiative was formed roughly ten years after OneHealth with an enhanced exploration of the importance of animal welfare, improving human-animal interactions, and the interconnectedness of environment in human and animal wellbeing.

Methodology: Critical review of publications from 2018-Present of the United Nations SDGs and OneHealth/One Welfare initiatives and additional international organizations involved in macro-level animal and human welfare and sustainable development. Review focused on current macro-level policy and practice initiatives as potential translation for micro and mezzo-level policy and practice development.

Main Findings: With an existing lag in research to practice implementation and an increasing importance on environmental health and sustainability, there exists a sizable and essential need for policy and practice initiatives available at present to improve global futures.

Principal Conclusions and Implications for the Field: The United Nations SDGs, while originally conceived for human wellbeing, has additional consideration for the inclusion of animal wellbeing. The current initiatives launched under the OneHealth and OneWelfare frameworks have additional benefit through collaboration on a macro-level with work being accomplished through the SDGs. Future considerations for these initiatives would benefit from additional micro and mezzo-level initiatives for individuals, communities, and agencies.

Studying Animal Behavior in Human-Animal Interaction Contexts

Shelter Dogs on a Walk: Examining the Effect of Veterans' PTSD Symptoms on Dog Stress

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Introduction: Walking a dog is recommended to improve people's stress, social interaction, and physical activity. Walking shelter dogs also may reduce symptoms for veterans with post-traumatic stress disorder (PTSD). While this activity may benefit human health, it is important to understand the impact of these walks on the dogs' stress. This study evaluated the impact of a shelter-dog walking program for veterans on dog's stress (heart rate variability: HRV) and whether the PTSD status of the veteran influenced the impact of the walk on the dog.

Methodology: IRB/IACUC approvals were obtained. Shelter dogs were walked by veterans who were participating in a 4-week, weekly, dog walking program. Walks were designed to take 30 minutes. Dog HRV was measured for 24 hours before, during, and after the veteran's first and last walks to assess the dogs' stress levels.

Main Results: The study included 38 walks by 25 dogs and 28 walkers. Seventeen of the walks (45%) were by veterans who reported PTSD. The dogs were largely male (60%) and mixed breeds (80%) and included sizes, small through large. Linear mixed models with measures nested within dogs were used to examine differences in HRV in specific periods. HRV during walks did not differ significantly from the same period 24 hours earlier, or HRV immediately prior to the walk. Post-walk HRV of dogs was significantly higher ($p=0.01$) for walks with veterans with PTSD than without PTSD.

Principal Conclusions and Implications for Field: This study provided no evidence that walking with veterans with PTSD was stressful to shelter dogs despite the unfamiliarity of the veteran dog walkers. Future studies with larger sample sizes in multiple shelters should be conducted to extend the current results.

This project was funded by an ISAZ/Waltham Collaborative Research Grant to Cheryl Krause-Parello.

Assistance Dog Puppy Behaviour: The Influences of Puppy Training and Socialisation Provided by Puppy Raisers, and Organisational Support

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Introduction: Although puppies are carefully selected into a puppy raising program as future assistance dog candidates, many do not proceed to advanced training after leaving their raiser, for behavioural reasons. Puppies' early experiences help determine their adult behaviour, but the raiser's role in puppy behavioural development during the first year of the puppy's life, is unclear. This study investigated relationships between puppy behaviour and several raising factors, including raisers' training and socialisation practices, and organisational supports.

Methodology: A sample of 231 raisers (205 women), completed an online survey, which included demographic information and three self-reported questionnaires measuring: raisers' socialisation, training, and help-seeking practices; support factors (e.g., trainers, mentors); and puppy behaviour. Stepwise linear regression analyses determined which raiser practices and support factors best predicted puppy behaviour. Additionally, mediation analyses were conducted to further explore any relationships between organisational supports and raiser's practices.

Main Results: An increase in puppy trainability was predicted by higher puppy age, and raisers' socialisation and training practices, $F(3,126) = 17.52, p < 0.001$. Reduced puppy distractibility was predicted by higher puppy age, and raisers' training practice, $F(2,127) = 15.11, p < 0.001$. Puppy excitability reduced as a function of higher raisers' socialisation practice, and support from puppy sitters from the organisation and external trainers, $F(3,126) = 7.39, p < 0.001$. Raisers' socialisation practice was the only variable that, when increased, predicted lower puppy general anxiety, $F(1,128) = 7.83, p = 0.006$, and higher adaptability, $F(1,128) = 6.81, p = 0.01$. Meanwhile, raisers' help-seeking behaviour mediated the relationships between mentor/counsellor support and raisers' socialisation, and training practices.

Conclusions and Implications: Raisers' practices directly influenced puppy behaviours. Therefore, organisational supports and training should aim to improve raisers' practices. Promoting a help-seeking culture and providing supervised peer-learning activities amongst raisers is crucial.

What is Written on a Dog's Face? Phenotyping Human-Directed Canine Communication

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Humans and dogs have a unique shared evolution. The domestication of dogs and dogs' coexistence with humans have influenced the biological and social development of both species. While the suite of physical changes that now separates dogs from extant wolves has largely been selected for by humans, evidence suggests that some changes may not have been as deliberately cultivated as others. In adapting to the social environment of humans, dogs have acquired both behavioral and anatomical traits that engender successful interaction with humans, specifically in regard to communication. In particular, dogs make eye contact with humans and use a variety of facial cues to effectively "speak" to human companions without words. Previous research (Santana et al. 2012; 2013) suggests that in primates, degree of phenotypic facial diversity corresponds with degree of sociality. Does the overall effect of prosociality in dogs trump intentional breeding for specific physical appearances? Through behavioral and physical phenotype analyses (observing rates of expression and coding facial coloration and patterns) of dogs living in households with humans, this author evaluates the potential impact of superficial facial markings and pigmentation on the production of human-directed facial expressions in domesticated dogs.

Measuring Human-Animal Relationships: Hand-Raised Pack-Living Dogs and Wolves Show Similar Hormonal Responses to Human Contact, but Pet Dogs Stand Out

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Introduction: Domestication may have altered dogs' oxytocinergic system and stress axis reactivity, potentially underlying their increased sociability towards humans, compared to wolves.

Methods: We measured hand-raised, pack-living wolves' (N=10) and dogs' (N=11) urinary oxytocin and glucocorticoid concentrations after a 5-minute interaction with a bonded (i.e., their hand-raiser; 'strong affiliative relationship') and a familiar (i.e., 'weak affiliative relationship') human. To assess the effect of life experience, we tested 10 pet dogs with their owners and a familiar person. We fitted linear mixed models (LMM) in R, including control and random effects.

Results: Wolves and dogs preferred interacting with the bonded partner (GLMM; $\chi^2 = 12.8$, $df = 1$, $P < 0.01$), but dogs showed less variability in their contact behavior. Glucocorticoids increased with being petted by the familiar partner in dogs and wolves (LMM, $\chi^2 = 6$, $df = 1$, $P < 0.05$), but oxytocin concentrations were not affected by human contact in either species (LMM, $\chi^2 = 0.33$, $df = 1$, $P = 0.57$). Pet dogs' oxytocin concentrations were positively associated with being petted by their owners but not by the familiar person (LMM; $\chi^2 = 5.1$, $df = 1$, $P < 0.05$), while glucocorticoids remained unaffected (LMM; $\chi^2 = 6.1$, $df = 3$, $P = 0.11$).

Conclusion: Given similar socialization experiences, wolf-dog differences in human-directed sociability and associated hormonal markers were present but subtle. However, pet dogs petted by their owners had increased urinary oxytocin concentrations. Our results do not support a general 'domestication' effect but rather indicate that previously described wolf- (pet) dog differences (Nagasawa et al., 2015) stem from distinct life experiences with humans.

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Investigating Indirect and Direct Reputation Formation in Dogs and Wolves

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Introduction: Reputation is a key component in social interactions of group-living animals and can be formed through direct or indirect experience. Considering dogs' dependence on humans, it may benefit them to form reputations of humans to choose an appropriate partner with whom to interact. Aside from the current mixed results on whether dogs are capable of this sociocognitive ability, another aspect is whether it is an effect of domestication or inherited from their ancestor, wolves. This study investigates whether dogs and wolves can form reputations of humans through indirect and/or direct experience in a begging situation.

Methodology: 11 wolves (*Canis lupus*) and 6 dogs (*Canis lupus familiaris*), equally raised and living at the Wolf Science Center, participated in an experiment that comprised three parts: baseline, observation, and testing. In the observation phase, the subject saw a familiar dog interact with two people – one generous and one selfish. The observer could then choose which person to approach in the test phase. The subjects were also tested after direct experience with the two people. To evaluate the animals' choice, we conducted Generalised Linear Mixed-Effects Models using R.

Results: Preliminary analysis suggests that dogs and wolves cannot form reputations of humans through indirect or limited direct experience (likelihood ratio test, $X^2 = 2.924$, $df = 7$, $p = .892$). Binomial tests also showed that the animals did not have a bias for any of the control variables.

Principle Conclusions and Implications for Field: This research may further our understanding of how domestication has changed dogs' sociocognitive abilities.

When Trained Dogs Could Help in Detection of Human Diseases: Demonstration of the Existence of an Epileptic Seizure Odour in Humans

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Introduction: Trained dogs have been used to detect various diseases and to anticipate oncoming crises thanks to their high olfactory abilities. Even if anecdotal literature exists detection of epilepsy in humans, no study has tested the possibility that epileptic seizures may be reflected in an olfactory profile that could be used by dogs. Thus, we hypothesized that there may be a seizure-specific olfactory component that would be common to different individuals and types of seizures. For that, we presented, to trained dogs, complex odours obtained from epileptic patients during different situations.

Methodology: Five dogs (three females, two males, various breeds; aged 2 to 5 years) trained to respond to target odour (approaching and standing above the “right” can) to bodily odours of patients with different epilepsies were individually tested on a seven-choice task. At each 5-min trial, seven scent samples from one same patient (5 different in total) were presented in cans: one from a seizure, two from a sports session, four taken pseudo-randomly on different days during calm activity. Each dog was involved in 9 trials in total.

Main Results: All trained dogs succeeded in each trial, exhibiting the “response behaviour” on the correct can (i.e. with seizure odour) in much less than 5-min-test (mean latency \pm SD: 9.3 ± 2.1 sec). Three of the 5 dogs performed at 100% sensitivity and specificity. The two remaining dogs displayed 67% sensitivity and 95% specificity, thus quite high performances still.

Principal Conclusions and Implications for Field: The sensitivity and specificity, despite the variety of seizures and individual odours, obtained were amongst the highest shown up to now for discrimination of diseases. This constitutes a first proof that seizures are associated with olfactory characteristics that trained dogs can discriminate. Further studies will aim to look at potential applications in terms of anticipation of seizures.

GPS Survey of Mare-Foal Pairs in Mongolia -How Nomads Produce Good Horse Milk

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Introduction: Nomadism, practiced in the Mongolian steppes for thousands of years, could be placed as the opposite of factory farming, but not much quantitative data is available. Since nomadism is declining due to globalization, it is an urgent task to verify the method of nomadic animal husbandry. In Mongolia, meat and dairy products are the traditional food, and among them, *Kumis* (fermented horse milk) is known as an important food with efficacy. The purpose of this study is to investigate the way nomads keep horses for producing *Kumis*.

Methodology: 1) A nationwide questionnaire survey on *Kumis* production from 2030 nomadic households in 2012¹⁾ and 2) behavior analysis by GPS for three pairs of mare and foal in a famous production area in 2013, were carried out in Mongolia.

Main results: 1) Milking was done only in the summer, 1~8 times a day during daytime. 2) Horses are grazing in herds at pasture, and the area of grazing land throughout the year was about 10 km². The foals are born in spring. They are kept standing by mare while milking, and after the milking, horses are released to the pasture until morning when they are gathered for next day's milking. The distance between the grazing mare and foal gradually increased with the growth of the foal from less than 100 m at the end of June to over 1000 m at the end of August.

Principal Conclusions and Implications for Field: Horses for making *Kumis* are bred in a way that emphasizes mother-child relationships, revealing the opposite of factory farming in terms of livestock welfare.

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Using Qualitative Behavior Assessment to Investigate the Effect of Tourist Interaction on Welfare in Captive Tigers (*Panthera Tigris*) in Three Tourism Facilities in Thailand

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Tourists are offered interactive experiences with captive tigers at many facilities worldwide, but the animal welfare implications of this are unknown. This study investigated whether Qualitative Behavioural Assessment (QBA) could: i) provide an indicator of tiger emotional state, and ii) be applied to assess whether human interactions affected emotional state in tigers.

QBA was applied to footage of captive tigers from three sites in Thailand; two offering unfamiliar human interaction (A and C), and one retirement site with no direct interactions (B). Analysis, using a Free Choice Profiling methodology, involved observers (N=38) split between three groups; tiger keepers and vets from the Thai sites (n=12), UK-based students (n=16), and UK/US/AUS tiger keepers (n=10). Tigers (N=35) were split between Sites A and C (n=17) and Site B (n=18) and filmed at three time points; morning, midday and evening.

Using Generalised Procrustes Analysis, a consensus profile was calculated for each observer group. Two behavioural expression dimensions (explaining 75% of the variation) were observed: Dimension 1 (D1: 'active-interested-agitated' to 'relaxed-calm-chilled-out') and Dimension 2 (D2: 'bored-stressed-frustrated' to 'relaxed-curious-interested'). Observer groups showed good agreement along D1, but agreement was more variable on D2.

Emotional expression on D1 was not significantly affected by site but was significantly affected by an interaction between age and time of day ($P < 0.05$). Time of day also affected scores on D2 ($P < 0.05$). During midday, when unfamiliar humans were present, all tiger age groups showed more positive behavioural expressions on D1 ('relaxed-calm-chilled-out') and more negative behavioural expressions on D2 ('bored-stressed-frustrated'), which could indicate that the presence of unfamiliar humans was a stressor. However, tigers in the retirement site also displayed these behaviours, which could indicate a deeper welfare issue.

With further development, QBA could be used as part of a valid tool for measurement of captive tiger behaviour.

The Effects of Interaction with Owners on Urinary Hormonal State of Cats

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Introduction: Cats are prominent companion animals worldwide; however, the house cat's basic physiological data (e.g., cortisol and oxytocin hormone levels) remains unclear. The aim of this study was to quantify the cortisol and oxytocin concentrations of cats and determine the factors influencing their hormonal conditions.

Methodology: We recruited cat owners from the Social Network Service. Over a period of three days, the owners collected spot urination and recorded the interactions with their cats. Additionally, the Feline Five, a questionnaire assessing cat traits, was completed by their owners. The urine samples were quantified using an enzyme-linked immunoassay sorbent.

Main Results: We selected 22 cats for this study and collected 128 urine samples. The oxytocin and cortisol concentrations were 119.76 ± 28.87 pg/mg creatinine and 3.48 ± 0.80 ng/mg creatinine, respectively. Cortisol concentration was negatively correlated with cats' agreeableness scores ($r_s = 0.71$, $p < 0.01$); the cats that co-slept with their owners every night showed a lower concentration than that of those that did not. Additionally, both cortisol and oxytocin concentrations were influenced by playing time over the three-day period.

Principal Conclusions and Implications for Field: The current study uncovered the basic physiological status of house cats by quantifying urinary cortisol and oxytocin concentrations. Surprisingly, hormonal conditions were influenced by the personality traits of the cats and their daily interactions with their owners. These results have the potential to contribute to the development of good relationships between cats and their owners and enhancing cats' welfare.

Assessing the Influence of Food Treats and Dog Stress Responses During Low Stress Handling Exercises: A Preliminary Study

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The use of food treats for distraction and counterconditioning during potentially-stressful interactions is a common low-stress handling technique used with companion animals (e.g., Yin 2009). We compared canine stress levels when food treats were used in this way during routine handling of dogs by unfamiliar handlers vs. when treats were not used. Stress behaviors exhibited by 40 human handlers and unfamiliar dogs during routine handling in a veterinary exam room were recorded using digital video. Behavioral data were coded using event-logging software (BORIS), and a canine 'stress index' (SI; rate of stress behaviors observed/min) was calculated for each handling session. Sessions were then coded as: 0 = no treats used and dog shows signs of stress, 1 = no treats used and dog appears calm, 2 = treats used throughout the entire session, 3 = treats used during the session but outside of handling sets. Sessions were also coded as "0" (no treats used) and "1" (treats used). Comparisons of the SI of dogs in sessions that used treats versus sessions that did not were made, using Kruskal-Wallis nonparametric ANOVA and Mann-Whitney U. Significant differences were seen between all 4 categories ($K=7.924$, $df=3$, $p=0.048$), with SI highest in category 0 and lowest in category 3. SI was significantly lower during handling sessions where treats were used ($U=2.311$, $p=0.021$). The results of this study support the use of treats to reduce stress and increase welfare of dogs and their handlers, particularly during stressful situations. Future analyses for this project will assess cardiac data (HR, HRV) of dogs and handlers during routine handling, in order to better understand ways to decrease stress levels of both, whether in the home, animal shelter, or veterinary clinic.

Can Implementation of Mental Health Interventions for Animal Handlers Benefit Animal Welfare? A Preliminary Study

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Introduction: Previous work indicates that unresolved chronic stress in animal shelter workers can be detrimental to animal welfare and increase handler risk of injury. As such, interventions to decrease handler stress could benefit both animal and shelter worker wellness. This study investigated whether the handler's completion of a stress-reduction exercise prior to dog handling could decrease stress levels in dogs.

Methodology: Stress behaviors exhibited by 40 human handlers and unfamiliar dogs during routine handling were recorded. Handlers and dogs participated in two identical handling sessions, one of which was preceded by a handlers' stress-reduction exercise, specifically guided mindfulness meditation (treatment); the order in which participants experienced treatment vs. control sessions was counterbalanced. Each session was recorded using digital video. Behavioral data were coded using event-logging software (BORIS), and a canine 'stress index' (SI) was calculated for each handling set. We then compared SI for sessions preceded by the mindfulness activity vs. control sessions, and for first vs. second sessions, using Mann-Whitney U non-parametric analysis.

Main results: SI scores were lower for dogs during treatment sessions, compared with control sessions, although significance was borderline ($U=1.955$, $p=0.051$). No difference was found between dogs' first vs. second sessions with a handler ($p=0.893$).

Conclusions/Implications: These results suggest that dogs experienced less stress when their handlers completed a brief, inexpensive stress-reduction exercise prior to the handling exercises. Our results indicate that dogs may benefit when handlers receive mental wellness interventions, supporting the implementation of mental health programs for animal shelter workers. This study is preliminary and part of a larger project examining the relationship between animal welfare workers and their animals. We will conduct future analyses on cardiac data and handler stress behaviors to better understand the efficacy of handler mental health interventions on increased animal welfare.

Don't Poop Here: Multispecies Conflicts in the Tree Wells of Brooklyn

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Introduction: The over 140,000 street trees in Brooklyn play an important role in the urban landscape, offering many benefits to residents like capturing stormwater and providing shade. Yet they are also fascinating sites of multispecies conflict. While trees in forests communicate with one another through complex mycorrhizal networks underground, street trees often appear alone, contained in small plots of land fenced off from the sidewalk. This may give the urban dweller the impression that trees are singular creatures or mere dormant decor rather than complex beings with agency.

Some tree wells are neglected, covered in trash, while others are highly micromanaged by local residents. All kinds of hand-made signage enforce the rules of these small areas, warning of rat poison or forbidding flower picking. Most prevalent are the tiny "Don't Poop Here" signs, comically posted at dog's eye view. Varying in materials and messaging, these tiny signs raise huge questions. Who "owns" these tiny patches of land? Who acts as their steward?

Methodology: My research employs a multi-sited and multispecies ethnographic approach, including annotated, photographic documentation of the tree wells and signage.

Main Results: In this talk, I'll present my Brooklyn Tree Well Typology, analyzing the many ways Brooklyn residents engage with and attempt to micromanage these microcosms. What can these small pieces of land teach us about the big blindspots and assumptions urbanites have when we attempt to manage ecological questions of any scale?

Principal conclusions and implications for the field: Multispecies ethnography is a growing field that aims to make sense of how we relate to and understand our more-than-human neighbors. The challenge remains of how to represent their perspectives in scholarship and move toward a more radical co-production of knowledge with non-human organisms.

The Impacts of Service Animals on Veterans

Service Dogs' Trained Tasks for Posttraumatic Stress Disorder and Military Veterans' Associated Symptom Severity

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Introduction: As the popularity of specially trained service dogs for posttraumatic stress disorder (PTSD) has increased, so too has the evidence for their efficacy. However, the critical components of the intervention are still largely unknown. Thus, we sought to quantify (1) the proportion of time Veterans and dogs were together, (2) daily use of trained service dog tasks, and (3) any relationships between these components and PTSD symptom severity.

Methodology: Participants included $N=65$ pairs of Veterans (81.5% male, $M_{age}=36.9\pm 7.8$) and their service dogs (64.6% male, $M_{age}=1.7\pm 0.5$ years, 64.6% mixed-breed, 55.4% from animal shelters). Veterans completed the PTSD Checklist (PCL-5) before and three months after pairing with a service dog. Ecological momentary assessment (EMA) was used twice daily for 14 days to ask whether Veterans were with their service dog and which of five trained tasks they had used in the preceding four hours: interrupt/alert to anxiety, calm/comfort from anxiety, block (create space), cover (watch back), and social greeting ("make a friend"). Linear regression analyses were conducted.

Main Results: Veterans reported being with their service dogs in 85.5% of EMAs, with no relation to PTSD symptom severity at follow-up ($p=.267$). The most frequently reported service dog task was to calm anxiety (52.9% of EMAs; other task frequencies: 16.1–17.8%). There was no association of symptom severity at follow-up with any task's use (p 's=.238–.996) except interrupt anxiety, which was significantly associated with less PTSD symptom severity ($B=-22.8$, $p=.048$).

Principle Conclusions and Implications for Field: Findings support existing evidence for a service dog's role in Veteran anxiety. Further, in identifying an association between symptom severity and the use of one specific trained task, the present study may suggest an avenue for in-depth research on potential mechanisms involved in Veteran-service dog partnership.

The Pet Effect

The Effects of Pets on University Student Mental Health and Stress during COVID-19

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Introduction: University students are recognised as experiencing higher than normal levels of stress and mental health difficulties. As previous research suggests that animals can effectively aid the treatment of stress and improve mental well-being, we explored the role of pet attachment in improving the mental health and quality of life of university students. This study aimed to test whether student pet ownership and high pet attachment were associated with fewer mental health issues. In addition, students' perceptions of the impact of their pets on their mental health during COVID-19 was examined.

Methodology: Participants were 204 (mostly females 22-25 years of age) current university students who completed an online questionnaire via Qualtrics comprising standardised measures of depression, anxiety, stress, loneliness, attachment to animals, and newly developed items on pets during the COVID-19 pandemic. Results were analysed using one-way ANOVAs and independent T-tests using SPSS.

Main results: Pet ownership was not significantly associated with better mental health ($p > 0.5$ across all measures). However, higher pet attachment was significantly associated with both students' stress and anxiety scores ($p < 0.5$ each), but not depression or loneliness scores ($p > 0.5$ each). Finally, higher pet attachment was significantly associated with more perceived social support from pets during COVID-19 ($p < 0.001$).

Principal conclusions and implications for the field: Our study suggests modest links between pet attachment and mental health outcomes. Students also reported animals as an important emotional support during the COVID-19 pandemic. These results demonstrate the potential importance of companion animals for supporting student wellbeing, especially during times of extreme stress. This further suggests that the efficacy of animal-assisted interventions may be dependent on allowing for time to bond with the animal, permitting higher attachment.

Family Dog Ownership and Youth Physical Activity Levels: A Scoping Review

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Introduction: Youth physical activity (PA) guidelines recommend school-aged children complete at least 60 minutes of PA every day. Only one in three children in the United States meet these guidelines. Dog walking and play are potential strategies to increase PA. This scoping review summarizes the existing literature on familial dog ownership and youth PA levels and identifies gaps in the literature to inform future studies.

Methodology: A PubMed search conducted in December 2020 yielded 659 results using the following search terms: (Kids OR children OR adolescents OR youth OR families) AND (Dog OR pet) AND (Physical activity OR walking OR steps OR exercise OR obesity). Following abstract screening, 80 articles were full-text screened and 18 articles were selected for inclusion.

Main Findings: A majority of studies were cross-sectional (88.9%). Study populations consisted of adolescents (38.9%), elementary-aged (27.8%), combined adolescents and elementary-aged (27.9%) and preschool-aged children (5.5%). Most studies consisted of majority White, higher SES populations (88.9%). Of 9 studies that compared PA levels among youth with and without dogs, 77.8% reported a positive association between dog ownership and PA. Other major outcomes of interest included time outdoors, screen time and emotional-behavioral health.

Principal Conclusions and Implications for the Field: Evidence supports a positive relationship between dog ownership and increased youth PA levels. Longitudinal studies are needed to determine whether the relationship is causal. If a causal relationship is demonstrated, initiatives that reduce familial dog ownership barriers may help increase youth PA levels in the United States. Randomized trials testing interventions to increase dog-facilitated PA in youth are also needed. Finally, the current literature focuses on White, higher income families; however, it is known that health outcomes are worse in low-income and ethnic minority youth. Therefore, future studies should examine the relationship between dog ownership and youth PA in these populations.

“He Keeps Me Going”: A Qualitative Study of the Meanings and Roles of UK Pet Dogs in Human Lives

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Introduction: How people conceptualise dogs has implications for how dogs are treated. This study investigated the roles that dogs play in the lives of their owners.

Methodology: Semi-structured interviews were conducted with 164 sets of dog owners. Interviews focused on the motivations and influences that impacted why and how people acquired their dogs. This dataset was part of a larger study of dog acquisition. Interview transcripts were coded in NVivo (v.12) using inductive thematic analysis.

Main Results: Owners perceived their dogs as playing various roles within their lives. Many recognised their dogs as companions, while some perceived their dogs as providing a therapeutic or protective role. Dogs were often recognised as family members, sometimes as quasi-children. Owners reported that their dogs enriched their lives in various ways, including providing a beneficial contribution to human well-being. Emotional attachment (i.e., companionship, friendship and love) and emotional support were two important themes that emerged. Some dogs were understood to have a utilitarian function, sometimes *as well as* being a pet, notably in providing emotional support. The responsibility of caring for the dog offered their owner purpose, routine and a reason to keep going.

Principal Conclusions and Implications for Field: These findings indicate that pet dogs play an important role in many people’s lives. Our findings also suggest that in some cases dogs may be sought and/or valued, in part, for their affective value related to the potential emotional connection that they can provide. These findings may guide future research, for example to explore potential welfare implications for dogs arising from their owner’s reliance on them for emotional support.

Pet Dog Exposure During Childhood and Teen Mental Health

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Our prior cross-sectional study of 643 children, ages 4-11 years, showed that children with pet dogs had lower anxiety scores (for separation and social anxiety) than children without dogs. We are conducting an 8 year follow-up study of these children (who are now teens) to ascertain whether pet dog or cat exposure during childhood prevents the evolution of mental health (MH) problems into MH disorders in adolescence. Using a retrospective cohort study design, we combined our prior study database with electronic medical record data to create a patient-level analytic database that includes common MH diagnoses (anxiety, depression, ADHD) occurring from the time of enrollment in the prior study to the present. ICD-9 codes before 10/1/15 and ICD-10 codes thereafter were used to identify MH cases. We used survival analysis to compare time to common MH diagnoses, anxiety disorder and MH diagnosis associated with a psychotropic prescription between subjects with versus without pets. Models were adjusted for age, sex, baseline SCARED5 score and zip code poverty level. Survival analysis of time to any MH diagnosis included 571 teens (mean age 14 years, range 11-19), 53% male, ($p=.76$), 56% had a pet dog at baseline ($p = 0.09$). MH diagnosis associated with visits made during the follow-up period included anxiety ($n = 85, 51.5\%$), ADHD ($n = 61, 37\%$), depression ($n = 15, 9.1\%$) and combined MH diagnoses ($n = 4, 2.4\%$). Having a pet dog at baseline was protective against time to anxiety diagnosis (HR = 0.657, $p=.0483$, 95% CI 0.433-0.997) and had a near protective effect against any MH diagnosis (HR = 0.745, $p=.065$, 95% CI 0.545-1.018), but not for MH diagnosis associated with a psychotropic prescription (HR = 0.863, $p=.477$, 95% CI 0.576-1.249). Exposure to pet dogs in childhood appears inversely related to the prevalence of teen MH disorders.

Changes in Oxytocin and Monoamines in Owners and Dogs in Dog-Walking

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Introduction: The dog-walking has a large effect as the physical activity, but few studies have clarified the benefits from the physiological point of view. The aim of this study was to investigate the detailed physiological effects on owners and dogs by samplings before and after the dog-walking and during the walk.

Methodology: Salivary samples were collected during dog-walking or walking without a dog for 30 minutes at the subjects' daily location. Such samples were from both owners and dogs before, during and after the walk. Quantitative analysis of oxytocin and cortisol used an enzyme immunoassay kit, and the high performance liquid chromatography was used to measure monoamine and its metabolites.

Main Findings: Owner salivary oxytocin levels were increased during and after the dog-walking compared to the walk without the dog. The activity of the owner's noradrenaline nerve was suppressed, while the activity of the dopaminergic nerve was increased during the dog-walking. Salivary oxytocin levels in dogs were slightly different from those in humans, showing high values in dogs. It was found that some dogs increased during the walk and the others did not.

Principle Conclusions and Implications: It has been shown that the owners' salivary oxytocin levels increase during the dog-walking. Furthermore, increased oxytocin appeared to result in decreased cortisol, suggesting a stress-reducing effect. The dog-walking clearly improves the physical and mental health of the owners, suggesting that suppression of noradrenaline nerve activity and enhancement of dopamine nerve activity bring some sort of motivation and/or vitality to the owners, which could be expected to have the effect of suppressing Alzheimer's disease.

Pet Effect on Human Well-being, Resilience, Coping Self- efficacy and Positive Affect During COVID-19 Movement Control Order in Malaysia

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Introduction: The impact of pets on human mental health and wellbeing has been widely researched. Pet effect becomes more relevant in episodes of social isolation, whether due to loss of family members, social support, job, or widespread pandemic like COVID-19. Social isolation has an impact on mental health and wellbeing, which results in other socio-economic and health issues. There is limited information on the benefits of pets on human mental health and wellbeing in Malaysia, especially during extended periods of social isolation, like Movement Control Orders (MCO). Therefore, the aim of this study is to investigate the difference in mental health and wellbeing between pet owners and others in Malaysia during MCO.

Methodology: A sample of 448 adult participants from all Malaysian states and federal territories was included. Pet ownership related questions were part of a bigger survey on mental health and wellbeing during the MCO in Malaysia. 224 participants reported pet ownership and identical number of non-pet owners were used for the purpose of the analysis. A variety of mental health and wellbeing measures were recorded, including PANAS – Positive Affect Schedule, Coping-Self Efficacy and The Warwick-Edinburgh Mental Well-Being Scale.

Main results: The analysis indicates that pet owners have significantly higher Positive Affect, Coping Self-Efficacy and Well-being scores (all $p < 0.05$), suggesting higher perceived ability to cope effectively with life challenges, more positive outlook on changes and higher general wellbeing during the MCO in comparison to non-pet owners.

Principal Conclusions and Implications for Field: This study demonstrates that pets have a positive impact on human mental health and wellbeing. These findings further suggest that pets can be integrated in wider psychosocial support structures in Malaysia as an effective addition for increased resilience and wellbeing in general population.

How Do Activities Associated with Dog Ownership Relate to Autistic Adult Well-Being?

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Introduction: Adults on the autism spectrum are at much higher risk of suffering from mental health problems and attempting suicide compared to the general adult population. Efforts should be made to both understand the factors that affect their well-being and prevent their suicidal risk. Owning a dog has been shown to improve the well-being of dog owners both emotionally and functionally, and a few studies indicate that autistic children benefit from having a dog in their families. However, little is known about dog ownership in autistic adults. This study sought to generate a framework relating activities associated with dog ownership (e.g., dog feeding) with specific well-being outcomes in this population and compare the content to a framework already derived for the general adult population.

Methodology: Thirty-six autistic dog owners (18 females) from different UK regions, aged between 18 and 74 years old were interviewed online. The data were transcribed and thematically analysed.

Main results: As with the previous framework, dog walking, dog-human tactile interactions and dog's presence were consistently reported to improve both hedonic and eudaimonic well-being, whereas dog's unwanted behaviours and dog's death/poor health were repeatedly linked to negative well-being outcomes. Distinct activities emerged in the new framework, such as impact of dog's absence (e.g., being stressed for being outside without the dog) and dog's assistance functions (e.g., alerting owner of a panic attack). Furthermore, 16.7% of the autistic dog owners reported that their dog prevented them from taking their own lives.

Principal conclusions and implications for the field: The findings indicate that, despite some constraints, having a dog is likely to improve the well-being of many autistic adults and might help in suicide prevention strategies. Future research should consider the diversity of activities and well-being outcomes involved in dog ownership before drawing conclusions of a 'pet effect'.

Therapists, Facilitators & Handlers

Understanding and Meeting the Needs of AAI Professionals

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Professionals who incorporate therapy animals into their practice have long lacked a centralized home for sharing ideas, standards, research, and best practices. Aiming to meet the needs of this powerful population, Pet Partners has conducted a series of research projects to determine the most pressing needs of AAI professionals and how they can be met to answer the call for further standardization and professionalization within the field. Data from these projects will be examined along with central qualitative themes as informed by some of the fields' most influential pioneers. Findings that shed light on best practices for AAI professionals will also be presented. Finally, ideas for meeting the needs of AAI professionals while also elevating the safe and ethical implementation of AAI within these settings will be discussed, ultimately calling for cross-disciplinary collaboration and continued advancement of the field.

Graduate Students' Perceptions of a Canine-Assisted Stress-Reduction Intervention

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Introduction: Many on-campus canine-assisted stress-reduction programs are implemented to support undergraduate students (Binfet, 2017; Pendry & Vandagriff, 2019) and little research has explored canine visitation with graduate students pursuing advanced degrees. This qualitative research explored the perceptions of 104 health sciences graduate students after participation in a six-week canine stress-reduction intervention.

Methodology: Participants interacted with a volunteer dog-handler team in groups of 3-5 for 35-minutes once/week for six weeks. Upon intervention conclusion participants were asked a series of open-ended prompts including: 1) "Why did you participate in a canine-assisted stress-reduction study?"; 2) "In one-word describe how you felt before and after sessions"; and 3) "What are three words that describe therapy dogs?"

Main Findings: Content analysis of responses revealed participants' motivation reflected in the following themes: 1) stress reduction to combat the pressures of graduate school (42%; e.g., "I wanted to do something outside of class that would be beneficial to me"; 2) spending time with therapy dogs (35%; e.g., "I was excited to have the opportunity to interact with dogs and take a break of school because I grew up never having a dog"); 3) to contribute to research (13%; e.g., "I've never been a part of someone's research before, and I found this particular study very interesting"). One-word descriptors pre-post session generated 59 prior/71 post/116 total responses (14 doubles – same descriptor submitted for prior and post) descriptors. Frequency distribution revealed prevalent pre-visit descriptors including *stress* (66%), *anxious* (53%), *tired* (28%), and *worried* (13%) whereas post-visit descriptors included *relaxed* (70%), *calm* (46%) and *happy* (41%). Question #3, generated the following prevalent descriptors: *calming*, *relaxing*, *loving*, *friendly*, and *happy*.

Principal Conclusions and Implications for Field: Findings suggest parallels between the experiences of undergraduate and graduate students around stress, therapy dog appeal, and benefits of therapy dogs that contribute to well-being.

The Targeted Incorporation of Nature-Based Interventions for Children and Youth: Staff Perspectives

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Introduction: Nature-based interventions, which include animals and the environment, are increasingly common, but little is known about how staff select interventions to support therapeutic goals. This study explored key considerations for intervention selection that were identified through qualitative interviews with professionals who regularly utilized nature-based interventions.

Methodology: Seventy-eight educational, residential, and clinical staff were interviewed at Green Chimneys, a school that incorporates a variety of nature-based interventions. Questions explored how staff selected from the school's resources - including gardens, dogs, horses, and a wildlife center - to support students' differing needs. Data were analyzed using a general inductive approach.

Main Results: When selecting interventions, staff focused on qualities provided, like delayed or immediate gratification, sense of safety or fear, and grounding or stimulation. Interventions were often described as offering multiple valuable qualities which could support more than one treatment goal. For example, a dog might provide immediate gratification by approaching a quietly seated student, or help a student feel safer in therapy. Each quality also displayed a subjective component. While one student may find time with horses grounding, another could benefit from being stimulated by the horse's smells and sounds. Therefore, while an intervention might have multiple therapeutic qualities, a range of available interventions was beneficial because it allowed targeted selection based on students' needs and subjective experiences.

Principal Conclusions and Implications for Field: Identifying intervention qualities and their relationship with treatment goals supports effective intervention incorporation. This fresh perspective could also offer opportunities to provide nature-based interventions in contexts with limited resources, or in which students' preferences or needs restrict some options. Future studies could enhance these findings by conducting interviews with students receiving nature-based interventions to understand intervention qualities they find impactful.

Adverse Events Reported in Animal-Assisted Interventions

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Adverse events surrounding animal-assisted interventions (AAIs) are reluctantly reported and uncommonly discussed in the literature. Adverse events are defined as undesirable or unexpected experiences that occur as a result of human-animal interaction that negatively impact the participant, handler, animal, environment, bystanders, or any combination of these. Little is known about the frequency and outcomes of adverse events because those engaging in AAIs are often reluctant to report them for fear of negative repercussions, including termination of AAI programs. Voluntarily reported adverse events occurring within an animal-assisted intervention organization in the Southeast US over a 5-year period (2015-2020) were retrospectively reviewed. Fourteen adverse events were reported; 6 events resulted in injury to a human participant; 1 event resulted in injury to an animal. Following these events, 3 animal-handler teams were retired from service, 7 animals were re-evaluated and continued therapy work, and 4 were lost to follow-up. Beyond the initial documentation and resolution of an adverse event, appropriate steps must be taken to manage the risk of any recurrence by instituting a standardized adverse event report and review process. Objective leaders of the AAI organization should be selected to review the event to discuss the potential causes for the incident, to ensure proper resolution and follow-up for all parties involved, and to institute policies and procedures for prevention in the future. Having a transparent process for managing adverse events in AAIs encourages proper reporting and ensures fairness that upholds the safety and wellbeing of all parties involved. Further research in this area will inform how frequently these events occur and how to achieve the best possible outcomes.

Existential Theory as a Guide for Animal-Assisted Interventions

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Existential-humanistic interventions have a special place in working with traumatized youth who are seeing clinicians who are using animal-assisted interventions. Existential theory says that all human beings are grappling with four existential givens, which include purpose, isolation, death, and freedom (Frankl, 1963; Jacobsen, 2007; Schneider & Krug, 2017). Working with animals in a therapeutic setting can offer traumatized teens some purpose (Duberstein et al., 2019) while giving them some relief from the isolation they feel as a result of their trauma. Through animal assisted interventions, teens coping with trauma will also discover that they have the freedom to self-actualize (Rogers, 1954). Furthermore, the death of the person they were prior to the trauma can be embraced rather than mourned, as the teens learn coping skills augmented by the unconditional support of their animal therapist partner.

Humanistic and existential psychological theory lends itself well to resolving trauma and trying to make meaning from it; working with animals can allow those who contend with trauma to process it better. Animal-assisted interventions are shown to increase clients' confidence, self-efficacy, and levels of resilience (Burgon, 2011). When coupled with client-centered, humanistic-existential theory, animal-assisted interventions could make a positive difference in helping teens to process the traumas that they have endured while building resiliency, grit, and inner strength.

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