

UMRA Workshop

Health benefits of companion animals for seniors: Pros and cons

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Pam Schreiner—brief bio

- 27 years in the Division of Epidemiology and Community Health, School of Public Health
- Teach statistical methodology and SAS programming
- Principal Investigator of the Coronary Artery Risk Development in Young Adults (CARDIA) Study
- Research interests: primary prevention of cardiovascular disease in middle age, including obesity and dyslipidemia; currently focused on hyperglycemia and hearing loss



CENSHARE

- Center to Study Human-Animal Relationships and Environments
- Established in 1981 by RK Anderson
 - DVM with interest in veterinary public health
- 3 main goals
 - Education: to disseminate knowledge about human-animal relationships via educational programming
 - Research: to stimulate and promote scientific study of human-animal relationships and environments
 - Service: to serve as a community resource for all matters involving human-animal relationships, including data for those developing public policy



CENSHARE

- Director since 2013
 - Focus on companion animals and human health
 - Animals in our environment
 - Study design and analytic methods
 - Resource for investigators interested in researching/quantifying the human-animal bond
 - Future goals to study how we impact animals' health and well-being



Topics Covered

- Definition of companion animals
- Pet ownership in the US
- Magnitude of pet effect
- Health benefits in seniors
 - Physical activity
 - Diet, lifestyle, self-care
 - Depression and loneliness
 - Biomarkers
 - Cardiovascular disease
- Pros and cons summary
- Reading the news objectively



Polls



Definition of Companion Animal (ASPCA)

- “Companion animals should be domesticated or domestic-bred animals whose physical, emotional, behavioral and social needs can be readily met as companions in the home, or in close daily relationship with humans”
- Species suitable to be companion animals
 - Dogs, cats, horses, rabbits, ferrets, birds, guinea pigs and other small mammals, small reptiles, fish
 - Domestic-bred farm animals if kept legally and responsibly
 - ASPCA is opposed to keeping wild animals or wild/domestic hybrids as pets



Companion Animals in the US (American Pet Products Association)

- Total US pet industry expenditures in 2020
 - \$103.6 billion

Category	Billions
Pet food and treats	\$44.1
Supplies, live animals & OTC medicine	\$23.4
Vet care & product sales	\$32.3
Other services*	\$9.7

*boarding, grooming, insurance, training, pet sitting, walking and all services outside of veterinary care



US Pet Ownership

- 2019-2020: 67% of households or 84.9 million homes

US households (millions)	APPA	AVMA
Bird	5.7	3.5
Cat	42.7	31.9
Dog	63.4	48.3
Horse	1.6	0.89
Freshwater fish	11.5	10.5 (both)
Saltwater fish	1.6	--
Reptile	4.5	3.7
Small animal	5.4	3.8



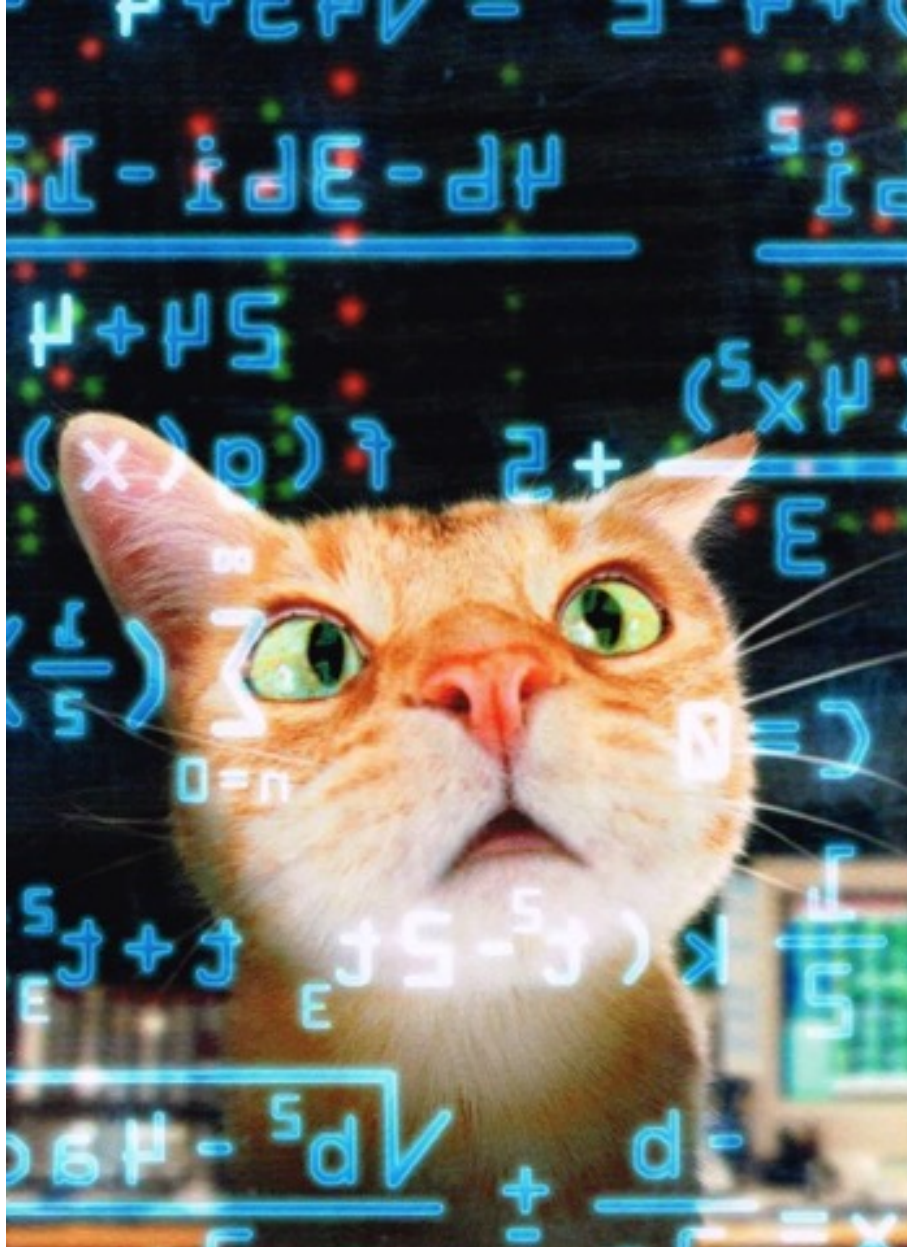
Demographic Trends

- Recent market analysis* examining demographic trends on consumer spending based on the size and age distribution of the future population
 - Overall US population will grow by **8% between 2015 and 2025**
 - Those **between 70 and 84 will increase by 50%**
- Retired people spend more time within their homes on activities and hobbies
- Spending on pets likely to grow well above the rate of total consumption

*The Impact of Demographic Trends on U.S. Consumer Spending, 17 Feb 2017, The Conference Board

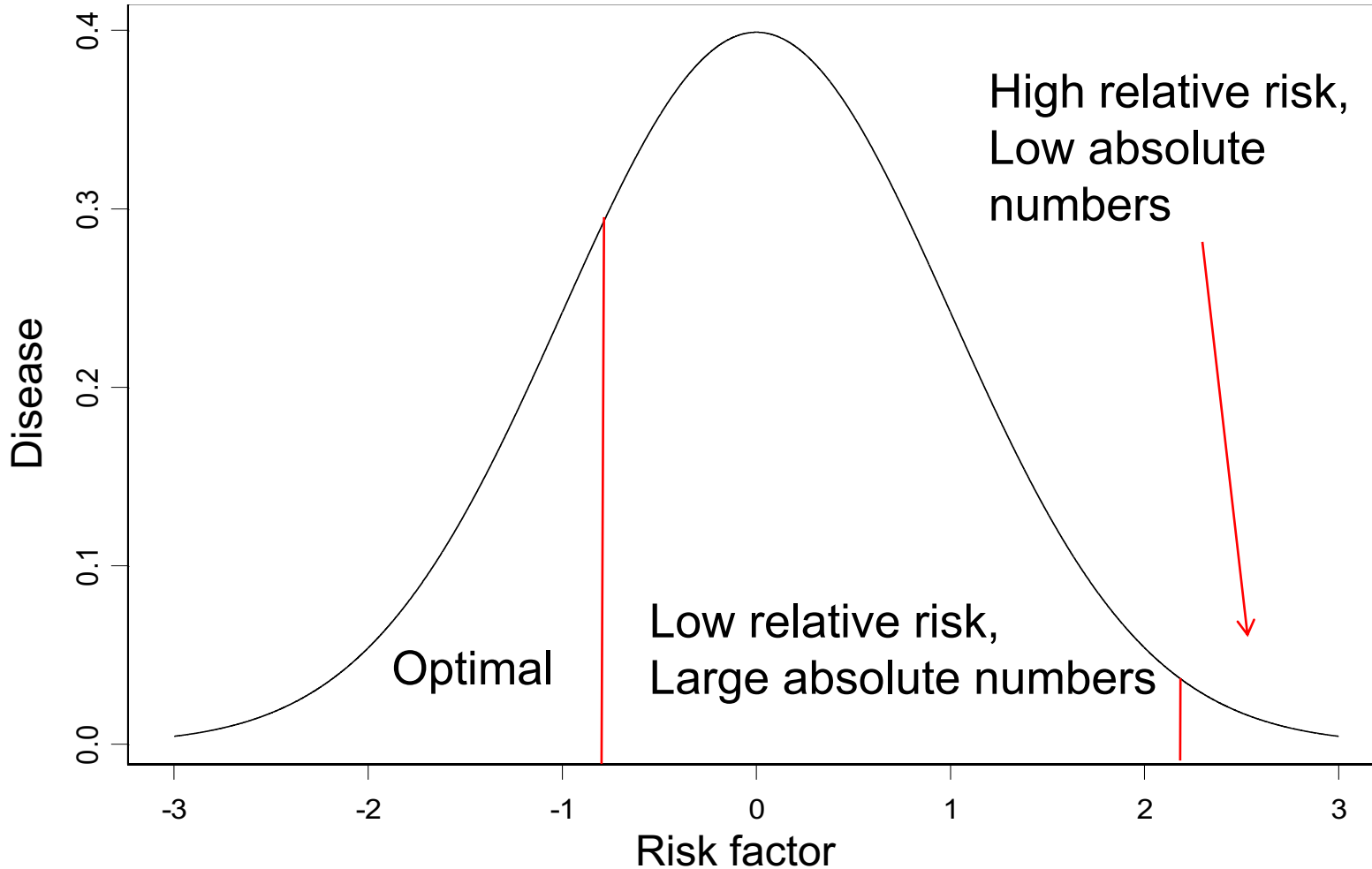


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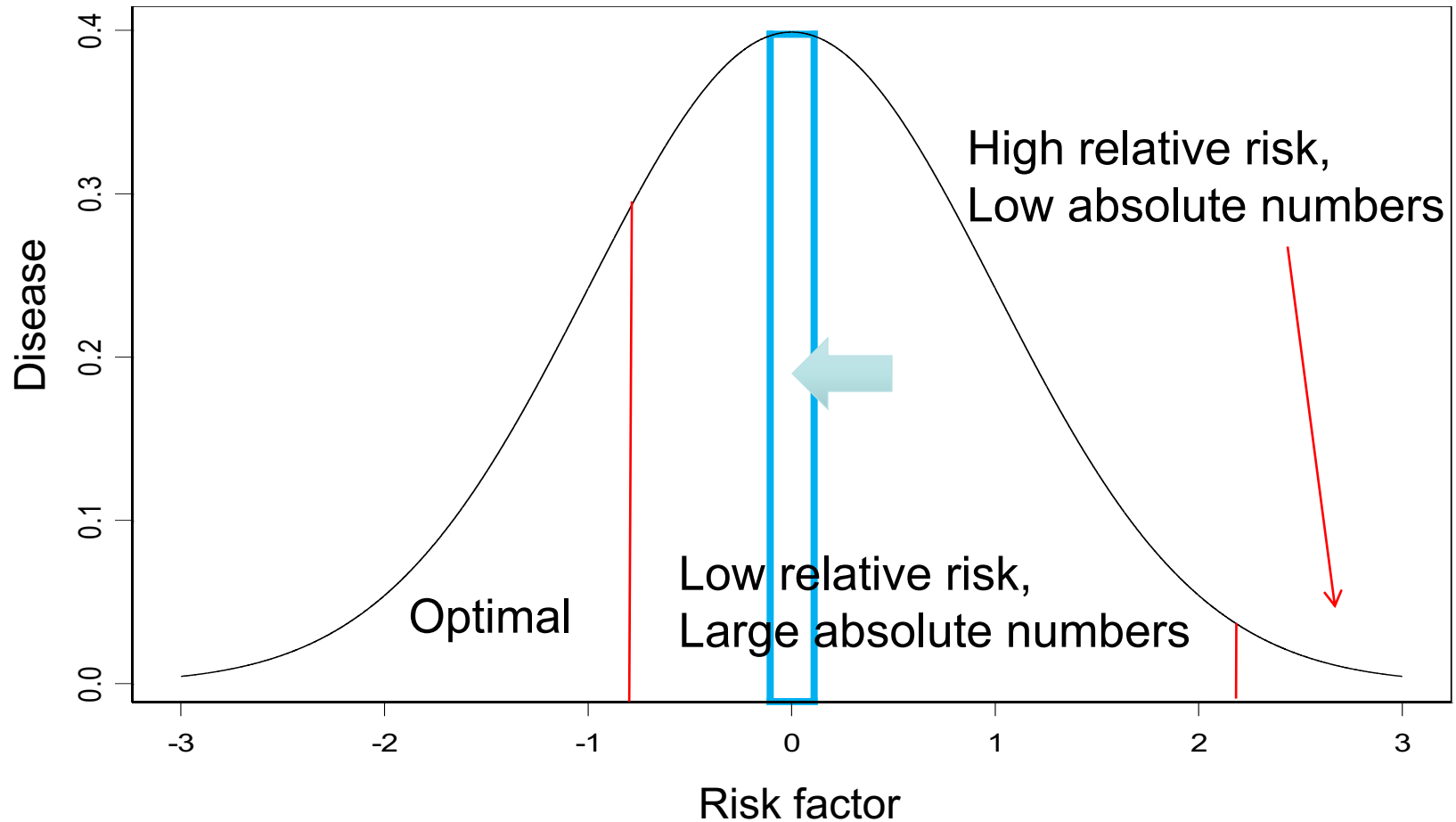


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Relative Risk vs. Absolute Risk



Relative Risk vs. Absolute Risk





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Physical Activity



Pets and Exercise

- In dog owners, walking associated with weight loss and lower BP
 - Estimates that 30-60% of dog owners don't walk their dogs regularly
 - Reasons: weather, work, family responsibilities, dog behavior, laziness/fatigue
- Veterinary data suggest obesity epidemic in pets parallels humans
 - Association for Pet Obesity Prevention—56% of dogs and 59% of cats are overweight or obese



Pets and Exercise 2

- In community-dwelling adults 71-82 years from the Health, Aging and Body Composition Study*, only 36% walked their dogs at least 3x/week
 - Dog walkers were more likely to achieve 150 minutes of walking/week and had faster walking speeds (a measure of mobility) than non-dog owners
 - 3 years later, dog walkers were 2 times more likely to achieve recommended walking levels
- Increases in physical activity only in a subgroup who may have been motivated to improve fitness or already physically active

*JAGS 2006; 54: 1419-1424



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Diet, Lifestyle, Self-Care



Diet, Lifestyle, Self-Care among Seniors

- More regular meals/higher diet quality (more milk and vegetables consumed)
- Better self-care
- Declines in prescription drug use
- Better sleep
- Fewer MD visits and minor health problems



Depression and Isolation



The role of pets

- Companionship
- Conversation topics/social lubricant
- Pet owners feel better about themselves because of unconditional love
- Safety
- Return to play and laughter
- Pleasurable to watch
- Comforting to touch
- Constancy and routine



The role of pets 2

- Are these benefits related to pets or increased contact with others?
- A sense of purpose
- Balanced with expense, potential for accidents and injuries due to tripping
- Some cities have foster programs to allow seniors to have pets without permanent adoption (seniors adopting senior pets)
- Pets not a panacea for aging, but a variable that may affect health and happiness



The role of pets 3

- In the Health and Retirement Study*
 - 52% reported having a pet (dog or cat, most with only 1 pet)
 - Pet owners were 1.89 times more likely to have experience depression
 - Temporality: were they depressed and adopted a pet, or does pet ownership lead to depression?
 - Does loss of a previous pet cause persistent depression?
 - Factors that differ between pet owners and nonowners?

*BMC Public Health 2018; 18: 305-11



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The role of pets 4

- Companion animals in the home and mental health, including seniors
 - Increased motivation for behavioral changes
 - Reduced anxiety
 - Increased social connections and reduced loneliness
 - Reduced risk behaviors
- "I can't give up when I have them to care for"

*Anthrozoos 2021; 34(4): 543-562



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Biological plausibility

- Oxytocin
 - “happiness hormone”, social bonding
 - Increases when women interact with bonded dog, decreases when men interact
 - Enhances sedation and relaxation, reduces fearfulness and sympathetic activity
 - Decreases blood pressure and heart rate
- Alpha amylase
 - Stress response, sympathetic nervous system, peaks 10 minutes after stress
- Cortisol
 - Chronic stress



Cardiovascular Disease



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Companion Animals and Health

- In 2013, AHA issued a scientific statement on pet ownership and CVD risk
- Data for pet ownership equivocal for
 - Blood pressure, lipids, obesity, heart rate variability
 - Some evidence of increased survival in patients with established CVD
- Summary: “Pet ownership, particularly dog ownership, is probably associated with decreased CVD risk; pet ownership, particularly dog ownership, may have some causal role in reducing CVD risk”

*Levine et al., 2013. Circulation 127(23): 2353-63



AHA Conclusion

- Pet ownership “may be reasonable” for reduction in CVD risk (particularly dog ownership and physical activity)
- Pet adoption, rescue, or purchase should not be done for the primary purpose of reducing CVD risk



AHA Conclusion 2

- Mechanism
 - Physical activity: increased in dog owners, mostly through behavioral intention and motivation/social support
 - Obesity: Obese pet owners lose similar weight as non-owners with dietary counseling
- Benefits are through intermediate factors such as mood, depression, social support
- Other species may have benefits, but not often considered
- Methodological issues—small numbers, temporality, differences in who chooses pets, comorbidities



Heart Rate Variability

- Heart rate variability: marker of sympathetic and parasympathetic autonomic nervous activity
- In patients with lifestyle-related disease (diabetes, hypertension, hyperlipidemia)*:
 - Pet owners: greater heart rate variability compared to non-owners
 - Adjusted for differences in age, sex, BMI, smoking
 - Cross-sectional data, no information on walking, exercise
- In patients with healed heart attacks**:
 - Pet owners: higher HRV compared to non-owners:
 - HRV: lower in depressed patients

*Am J Cardiol 2012; 109:1164-1170; **Am J Cardiol 2003; 91:718-721



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Post-MI Survival

- Pet ownership associated with improved long-term survival 1 year after a heart attack*
- Interaction of pet ownership with depression
 - 460 patients
 - Best outcome: pet owner/low depression
 - Moderate outcome: either pet owner/high depression or non-pet owner/low depression
 - No data on when pets obtained or lost, too few deaths to separate cat owners from dog owners

*Anthrozoos 2011; 24:273-285



Pets and recovery post-stroke*

PROS

- Motivation for physical and psychosocial recovery
- Someone to care for
- Acceptance of disability
- Family member

CONS

- Expense
- Fear of losing the ability to keep pets (either death of pet or unable to care for current pet)
- Grief and mourning

*Br J Community Nurs 2014; 19(12):578-84





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Data from the CARDIA study



Results

- 840 participants completed questionnaire

181 (21.6 %) current dog owners

172 (20.5 %) current cat owners

104 (12.4 %) current owners of both

287 (34.2 %) past owners of either

95 (11.3 %) never owners



Reasons for Not Currently Owning Pets (past and never owners)

Choice	60.5%
Allergies	14.4%
Allergies in family member	9.6%
Housing situation	15.5%
Can't afford	9.6%
Other	16.7%



Dr Tinycat to the OR



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Pros and Cons of Pet Ownership

- Pros
 - Companionship
 - Less isolation and depression
 - Improved self-care and exercise
 - Structured lifestyle
- Cons
 - Allergies
 - Grief over pet loss
 - Inability to afford or care for pet
 - Fear that death will leave pet alone



Reading the News Objectively

- Are the data cross-sectional?
 - Diabetes and obesity examples
- Are the benefits related to increased activity or social contact rather than the pet?
- Who is the comparison group?
 - Are those with companion animals either better off socioeconomically or health-wise? A safer neighborhood or homeowners with more leisure time?
- Is wanting a pet a marker of a different type of person than someone who does not choose one?
- Are the populations generalizable with good sample size?





QUESTIONS?