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## Attitude toward Companion and Guard Dogs in Hawaii: Health and Welfare Implications

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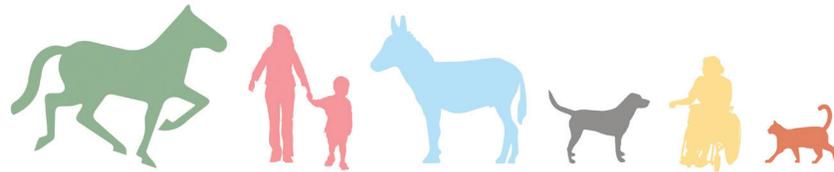
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## Attitude toward Companion and Guard Dogs in Hawaii: Health and Welfare Implications

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**Keywords:** interviews, surveys, blood pressure, companion, guard, hunting

**Abstract:** The island of Hawaii exhibits extremes in dog welfare ranging from dogs as family members to dogs used as commodities, either as guard or hunting dogs, with many lacking appropriate care. This study offers a preliminary exploration of people's attitudes toward companion and noncompanion dogs and the health and welfare implications for humans and dogs. Data collection included interviews and surveys conducted among 20 companion dog/human and eight guard dog/human dyads. Blood pressure (BP) was monitored during interviews to assess stress. The results of the interview data led to five themes. The first two themes describing contexts of dog welfare and the constraints surrounding advocacy are strongly interrelated. The third theme on the cultural constructs of hunting increases our understanding of attitudes toward dogs in this part of Hawaii. The fourth theme highlights the benefits of having a dog in various settings with the fifth theme outlining participant suggestions for improving the conditions of backyard guard and hunting dogs. Companion dog keepers differed significantly from those who had guard dogs for the Dog Attitude Scale score ( $F(3,26) = 1.36; p = 0.016$ ), indicating that the companion group had a more positive attitude toward animals. Baseline BP had a statistically significant negative relationship with the Animal Attitude Scale score where a 1 point increase, indicating a positive attitude toward animals, resulted in a 0.35 mmHg decrease in baseline BP ( $\text{Adj } r^2 = 0.19; F(3,27) = 3.34; p < 0.05$ ).

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## Introduction

Humans and dogs are both social animals who began sharing their emotional lives and physical environment approximately 15,000 years ago (Axelsson et al., 2013). Contemporary cultural differences are reflected in the various uses of dogs whether it be for companionship or for more utilitarian purposes such as herding, hunting, or guarding (Gray & Young, 2011; Kim et al., 2018). Dogs and pigs have a long history in Hawaii, both being brought to the islands by early Polynesian voyagers as sources of food. Dogs are ubiquitous as either companionable family members or as guard and hunting dogs, the latter being a significant aspect of local cultural tradition.<sup>1</sup> National parks rely on hunting dogs to cull feral pigs to maintain the native endemic biota (Caley & Ottley, 1995). The state of Hawaii ranks 39th out of the 50 states with respect to animal protection laws (Animal Legal Defense Fund, 2021). Guard dogs are often placed around the property on short ropes without respite. Shelter from the sun and pervasive rain is inadequate as is human interaction and physical exercise. Hunting dogs are often undernourished and suffer from gore injuries from pigs or fights with other dogs. One of the authors (JALA), a local veterinarian, states that while some hunting dogs wear protective vests and collars, others are sewn up or stapled in the rainforest or neglected when injured. Hawaii is not unique, as Gray and Young (2011) illustrate in their cross-cultural examination of animals. They found that in numerous societies, dogs primarily function to guard property, assist in the hunt, or be a food source.

Blouin's (2013) work describes three cultural types of human-canine relations: "dominionistic," "humanistic," and "protectionistic." The latter two have a fair amount of overlap in which the dog has an elevated status and is considered a friend, with the protectionists advocating for animals in need. Those with a dominionistic orientation consider dogs to have a low status, be replaceable, and easily relinquished. However, observing dominionistic human-dog interactions can be deeply disturbing to those who align themselves with the animals as their protectors. Levin et al. (2017), who compared responses

to abusive scenarios, found individuals were more emotionally disturbed by reports of animal suffering and child abuse than by adult human suffering. The researchers suggest the greater empathetic response to animal and child abuse, the greater the evolutionary response in humans to protect those that are young and vulnerable. The emotional burden of animal cruelty is likely intensified by anthropomorphizing our pets (McConnell et al., 2011).

It is clear to many researchers and animal advocates that dog companionship should be included as a variable when investigating human health. Qualitative and quantitative research in the last few decades has reinforced anecdotal information that having a dog companion results in positive health benefits for the human; however, there has been little consideration of the effect humans have on dogs with the majority of studies focusing solely on humans (Beck & Katcher, 2003; McNicholas et al., 2005; Schöberl et al., 2012). For example, a study found that pet keepers had greater self-esteem, were less lonely, and were more physically fit than non-pet keepers (McConnell et al., 2011). The Pet Attitude Scale (PAS), a psychometric measure of how humans regard their animal companion, has been used in a number of studies to show the relationship between positive attitude toward dogs and lowered blood pressure (Allen et al., 1991; Templer et al., 1981). Friedmann et al. (2013) found that individuals' blood pressure decreased when in the presence of their pet dog. To build on previous research and include dog welfare, the goal of this study is to gain a greater understanding of people's attitudes toward dogs and the health and welfare implications for humans *and* dogs. Using qualitative interviews, surveys, and blood pressure (BP) monitoring, we compare individuals who have companion dogs to those who have guard and/or hunting dogs and explore the context of the dogs' lives.

## Methods

### *Ethics Review*

Approval by the University of Hawaii Institutional Review Board (IRB) and from the Institutional

Animal Care and Use Committee (IACUC) was obtained.

### Participants and Procedures

This study was conducted in East Hawaii County, Hawaii. Recruitment included flyers, visits to hunting stores, word of mouth, and door-to-door calls. Dog participants were medium to large size and over 6 months of age. Humans were over 18 years of age and not on blood pressure medication. Participants received a \$30 gift certificate and a box of dog biscuits.

A total of 28 human-dog dyads participated in this study: 20 companion dog (CD) dyads and eight guard dog (GD) dyads.<sup>2</sup> CDs were free-ranging, indoor/outdoor dogs receiving human interaction through shared living space, walks, and outings. GDs lived outside perpetually tied to a doghouse. Several of the GDs were used as hunting dogs. GDs were significantly heavier than CDs. Nine of the GDs were pit bull or pit bull/mastiff mixes whereas 4 of the CDs fell in that group (see Table 1). Table 2 outlines human demographics with notable differences in age and ethnicity; GD keepers were younger and more likely to be Hawaiian or Hawaiian/Mixed.

To assess the health effects of the human-dog relationship, we used face-to-face semistructured interviews, the Dog Attitude Scale (DAS) and Animal Attitude Scale (AAS), and BP monitoring for

**Table 2** Human Demographics

Group	Companion (n = 20)	Guard (n = 8)
Average Age	47	36
Females	8	5
Males	12	3
Caucasian	14	1
Hawaiian/Hawaiian Mixed	2	4
Other Ethnicity	4	3
Employed: Yes (No)	12 (8)	3 (5)

humans (Cohen et al., 1983; Herzog et al., 1991; Templer et al., 1981). The DAS is a minor modification of Templer et al.'s (1981) PAS in which "pet" in the questions was changed to "dog" since our study was singularly on dogs. One question in the AAS was altered to refer to "mongoose" rather than "mink and raccoons."

All CD ( $n = 20$ ) and GD ( $n = 8$ ) keepers were interviewed in their homes and asked to describe their feelings toward their dog(s); the dogs' significance in their lives; activities such as walking, hunting, road tripping that include their dog(s); if they had dogs growing up; how often is the dog(s) off the chain (if applicable); how often does your dog(s) go hunting and how much exercise do they get; their observations of neighborhood dogs and mistreatment; and what they felt would ameliorate the situation including a probe about the length of time and length of chain a dog should be on. The semistructured interviews lasted 40–60 minutes. Participants were not privy to the questions ahead of time but were told the general topics of the interview during telephone screening for eligibility. Before the interview began, two baseline readings to measure BP at rest were taken, followed by two BP readings while participants talked about food, an innocuous topic, to capture how BP might be affected simply by conversing. A minimum of eight BP readings were taken during the interview. The DAS and AAS were then completed.

**Table 1** Dog Demographics

Group	Companion (n = 21)	Guard (n = 10)
Purebred	6	3
Mixed Breed	15	7
Females	8	3
Males	11	7
Average Age	5	6
Average Weight (lbs)	57	78*

\*Significant difference:  $p = 0.045$ .

The lead author conducted the interviews while one of the research assistants (MK or JH) monitored the BP readings and took field notes while on-site, noting general dog behavior and human-dog interactions with their person(s) as well as their reaction to the researchers. The field notes contributed to our understanding of the overall setting. Noted were position of ears and tail and general demeanor (friendly, shy, scared, aggressive) as well as shelter conditions and approximate length of chain or rope (when applicable).

### *Measures of Data Management and Analysis*

The face-to-face interviews were recorded, transcribed verbatim, then coded by three of the researchers (LM, MK, JH). The data were entered in NVivo10, a qualitative data software by QSR, and further analyzed to develop categories and subsequently themes (QSR International Pty Ltd. 2012). The quantitative data were analyzed using SPSS24.

## Results

### *Qualitative Results*

The first two themes, the context of dog welfare and constraints surrounding advocacy, are strongly interrelated themes. The third theme on the cultural constructs of hunting increases our understanding of attitudes toward dogs in this part of Hawaii. The fourth theme highlights the benefits of having a dog with the fifth theme outlining participant suggestions for improving the conditions of neglected dogs.

### *Context of Dog Welfare*

Participants were questioned about what they felt was acceptable and unacceptable treatment of dogs. Notably, CD keepers' BP consistently peaked over 140/90, indicating momentary distress, while they recounted stories. Bobbi-Lyn, a companion dog keeper (C), passed by a chained dog every week whose

collar had grown into its neck while Janet (C) commented on the heartbreak it caused her when seeing dogs being beaten. Susie (C) says of an acquaintance:

Cages! People cage their dogs . . . there's someone in [. . .] that was a friend of a friend of mine, and when I went over there, they just had dogs in cages, and cages, and cages, and I'm like . . . this shouldn't be all right.

Josie (C), who has several dogs, says:

We go to church in [. . .] and there is a dog we pass and we look for him every Sunday and he's on, I wanna say a five-foot chain to a tree. Don't matter it's raining or whatever the weather, he's on five-feet, it's not an awful lot . . . so I think there should be [a tie-down law].

Rob (C) describes his neighbor's dog. "There's a guy down the road, he's got this beautiful blue pit bull . . . poor guy is on a 10-foot chain with a dog-house and that's it . . . his whole life, a 10-foot chain in a corner in a yard out there."

The same participant, who works in a veterinary clinic, recounts how he ultimately acquired his third dog. This is Pansy's story:

The Humane Society brought her in on death's door. She had been abandoned down in the subdivision just tied to an abandoned house and left for dead. They would throw food at her once a week if she was lucky . . . she was just a little rack of bones, skin and bones . . . we didn't expect her to make the first night. We put the IVs in her and gave her what we could . . . and came back in the morning and she's in there looking at us [laughing].

Mistreatment of dogs is not only observed at people's homes. Diane (C) describes a common occurrence on the streets and highways:

I think what drives me nuts is when I'm driving on the road, and I'll see a flatbed truck with dogs unrestrained in the back . . . moving back and forth.

That really bothers me because the dog could be ejected and killed.

### *Constraints Surrounding Advocacy*

The lack of county policies leaves animal control officers disempowered to do anything about dogs on short chains but to leave a notice suggesting improvements. The local humane society, who have been advocating for tie-out laws, asked us to include a question about a minimum rope length law. Rick (C) emphatically states, “Yeah, we should have laws about having an animal on a chain for so many hours a week, a day, or what have you.” A common response, however, was questioning how such laws would be enforced and the friction they may create between neighbors.

Kate (C) says, “I don’t think it would be easy to enforce, like if I did it [report a neighbor] they would know who it was.” Joe (C), who is originally from the mainland, recognized the conflict that proposing such laws might cause. He says:

You hear a lot about like you know [expletive] haole [a person who is not Hawaiian], you move here and try to tell us what to do. Somebody told me just keep your mouth shut for the first couple years you’re here.

In part due to the animosity felt between mainlanders and locals, there is a reluctance to be proactive when it comes to the mistreatment of dogs. Susie (C) states:

I’m from California. I think people are more open to speak up. And over here it seems like . . . well if it’s not bothering me . . . let people take care of their own stuff, I’m not gonna call the cops or the humane society unless it directly affects me.

Josie (C), who saw a dog getting beaten by a hose, says:

I saw it happen and I felt bad that I didn’t go over because I was at my neighbor’s and she said, “Don’t go, you know he’s drunk.” She was

afraid . . . he was a nasty drunk. . . . I didn’t [go over] but I did call the humane society. . . . I felt bad that I didn’t [do something] at the moment.

Houses and properties with multiple dogs have short tie-downs so the dogs cannot reach the other dogs and fight or entangle themselves. Many homes have two to five dogs staked along the perimeter of their yard for protection. Kanani, a guard dog keeper (G) with multiple GDs on short chains, says, “We have too many rip-offs. That’s a reason why we have our dogs.”

There was concern about the lack of shade for dogs, especially the GDs on vacant properties who are fed and watered every few days. Several participants commented that dogs on tie-downs should be let off their chain regularly for play and exercise, criteria that are really at the crux of this issue. Ikaika (C/G) says:

I feel people having one dog leave no wata [water] . . . da [the] pan is upside down, da dog gets wrap around one tree and skinny. In da sun or in da rain and do not have shelter. Dat [that] eats me up . . . da dog no can talk. . . . I do not blame da dogs, I blame da people raising da dogs.

Janet (C) relates her experience:

I did the census in 2010 and came to a home where nobody answered. . . . it was pretty obvious the house had been abandoned and there were three dogs tied up to dog houses on tiny little chains with no food or water. They were down to skin and bones and even if the people came back, the dogs were being completely ignored. I reported it to the humane society and I went back a couple days later because I was doing my second attempt and the dogs were still there. The humane society did not react and I called them on it.

When asked about the responsiveness of the local humane society, Makana (C) said, “I think they [the humane society] do a pretty good job with what they

have and you know the liabilities associated with their jurisdiction . . . like everyone is scared to, you know, to really act upon something 'cause of lawsuits." Lastly, Kainoa (G) says, "It isn't my *kuleana* [responsibility] what somebody else does with their dog, with their children . . . I mean, ultimately. I would love to fix all da tings [the things] that are not correct . . . but you cannot."

### *Cultural Construct of Hunting*

Using dogs for pig hunting has a long tradition in Hawaii and is steeped in cultural significance. Despite this shared tradition among locals and mainlanders, there is disagreement among hunters on how to appropriately treat dogs. Some dogs are outfitted with expensive tracking devices like global positioning system (GPS) tracking collars while other dogs are starved or given amphetamines before a hunt to purportedly enhance their performance. Ikaika (G) says, "Yeah, they starve the dog for one day so the dog can hunt the next day . . . some of dem [them], I guess, dey [they] no care for dogs and dey make dogs do things they no like." Ikaika has no qualms with using dogs to hunt as long as they are treated right. He explains, "Dogs were raised for hunting. I believe nothing wrong with using a dog for hunting. Akitas and all these other dogs and you gotta hunt 'em. Main thing they do what they gotta do, take care of your dog." When asked if a lot of dogs die while hunting, Ikaika says, "Yeah, you come across one big pig, your dog gonna get jacked."

Despite some hunters regarding dogs as their "hunting partner" and outfitting them with GPS collars and cut collars to protect their necks from boar tusks, lost hunting dogs are not unusual. Janet (C) reflects on a very sweet hunting dog she found who still had her hunting cut collar on. After housing her for a week and trying to find her keeper, she eventually brought the dog to the humane society. She says, "That's sad that they go through dogs kind of as rapidly as they do sometimes. I think they just use them like machines."

Similarly, Joe (C) found a dog at his house that he was unable to help because the dog was so fearful.

He says, "I had this loose dog come running up to the house and one of its poor eyes was just torn out and had this huge gash and I tried really hard to get it." Makana (C) grew up in the islands and has a deep understanding of his community and the conflicts regarding care of animals. Although he grew up using dogs for pig hunting, as an adult he chose to discontinue the tradition. He explains:

I'm a softie. I cannot handle when the dogs get hurt. I pig hunt a lot but I don't use dogs 'cause I no like them getting ripped open with the tusk and stuff . . . 'cause the dogs are so loyal to you but people say that's what they're bred for, that's what they like to do, and stuff like that, but I mean it's like when a dog gets ripped open and you know they gotta walk back to the truck, the two miles or whatever with their guts hanging out, you know.

He and his partner are health care professionals and are often asked by their friends to suture up hunting dogs who have been gored by boars. It is not uncommon for hunters to staple dogs' wounds or suture them with needle and thread in the rainforest. Although Makana still hunts with friends who have dogs, he does not feel dogs are necessary to be a successful hunter. He explains:

I don't like to kill dogs for no reason and I do just as well without the dogs [hunting], especially living out here. I stop up on the hill and throw the scraps and the pigs come around, no need the dogs too, you know. I just like them [referring to his two dogs sleeping in their beds] right here in the backyard.

Jackson (G) explains why certain hunters starve or smoke their dogs. He says:

You no like feed your dog before you go hunt . . . but I see people . . . they like turn the dog onto drugs, like Ice [amphetamines] and [expletive] . . . keep the dog up all night. The dog will not sleep. . . . I see 'um cut the two-liter soda bottle, they cut the bottom part off, they put 'um on

the dog's mouth, and it's like the dog get so addicted . . . he just like smoke.

Kanani (G), who has small dogs running free inside the home and two chained dogs, remarks on the use of steroids in dogs, "I don't give my dogs steroids, I don't believe in that [expletive] to make 'em big, especially the pit bulls."

Some pig hunters go out every night while others go three to four times per year so the amount of exercise the dogs get varies. When not on the hunt, the majority are chained with little exercise in between hunts. Amanda (C) recalls:

I used to live in [. . .] and . . . there would be this one house. It was just filled with hunting dogs. It was like fenced in with those little huts . . . and there had to be like 80 dogs on this property . . . they were just everywhere, all different ages and sizes . . . so it was either hunting or fighting.

### *Benefits Derived from Having a Dog*

Benefits related to living with a dog included positive mental, spiritual, and physical health as well as the practical aspect of home security. Makana (C) says, "It [watching his two boxers play] makes me feel good inside. I would say they're a stress reliever, you know, because of their love . . . when you come home, they are always loving, they are all excited to see you." Josh (C) says, "You feel like you're caring for some other living thing that might also care about you so you share that sense of . . . compassion and caring." There was general agreement among C respondents that dogs are excellent companions with "wonderful souls."

There is also a practical aspect of having dogs, especially when living on an island with a fairly high rate of house robberies. Kalei (G), who had very socialized GDs, states, "I like dogs and they're good protectors and they ward off criminals." Kainoa (G) says of her pitbull/mastiff and four puppies, "Today the number one thing is feeling safe. 'Cause how I told you how there's been those burglaries." Lastly, Jackson (G) replies pragmatically about his hunting

and GDs by saying, "Food in the freezer. Smoke meat. Everything."

### *Improving Conditions for Dogs*

Most of our participants intimated that some form of education was necessary to improve conditions for dogs. Many reflected that the care of an animal is learned in the culture and family, which may extend back for generations. Diane (C) says, "I think part of it is lack of education, lack of sensitivity . . . a generational thing where one generation teaches the next that dogs are not valuable." Josie (C) wants to see public service announcements. She says, "If they could maybe advertise more about people taking care of dogs. To me the chain thing, the length of the chain."

### *Quantitative/Biological Data*

Cs differed significantly from the Gs for the total DAS score ( $F(3,26) = 1.36; p = 0.016$ ), indicating that the companion group had a more positive attitude toward animals. Unexpectedly, there were no differences between the two groups for the AAS. However, we found some interesting differences between the two groups in individual items on the AAS and DAS (see Table 3) with C keepers' scores indicating a more positive attitude toward animal welfare issues. The questions the two groups differed in were closely related such as "right to use animals" and "breeding animals for their skin," while "too much fuss over the welfare of animals" is linked to "the production of inexpensive meat . . . crowded conditions." Those with GDs felt that "dogs should always be kept outside" and did not feel they were "worth the trouble," while Cs felt they could "communicate" with their dogs.

Baseline BP had a statistically significant negative relationship with AAS score where a 1 point increase in AAS, indicating a positive attitude toward animals, resulted in a 0.35 mmHg decrease in baseline BP ( $\text{Adj } r^2 = 0.19; F(3,27) = 3.34; p < 0.05$ ). The two groups differed significantly for total (baseline, food narrative, and dog interview) diastolic BP with Gs having higher diastolic BP ( $P = 0.04$ ). No

**Table 3** Statistically Significant Differences in AAS and DAS

Question	Outcome	Significance
AAS: Basically, humans have the right to use animals as they see fit.	F(2,24) = 3.03	$p = 0.002$
AAS: Too much fuss is made over the welfare of animals these days when there are many human problems that need to be solved.	F(2,24) = 2.1	$p = .005$
AAS: Breeding animals for their skin is a legitimate use of animals.	F(2,24) = .097	$p = 0.015$
AAS: The production of inexpensive meat, eggs, and dairy products justifies maintaining animals under crowded conditions.	F(2,25) = 1.44	$p = 0.03$
DAS: I feel that dogs should always be kept outside.	F(2,26) = 6.14	$p = 0.000$
DAS: I have occasionally communicated with my dog and understood what it was trying to express.	F(2,26) = 3.09	$p = 0.016$
DAS: Animals belong in the wild or the zoo but not at home.	F(2,26) = 2.45	$p = 0.027$
DAS: Dogs are fun but it's not worth the trouble of owning one.	F(2,26) = .254	$p = 0.006$

differences were found with systolic BP or BP within each category.

## Discussion

Artificial selection based on breed and temperament has focused on making the dog more compatible to human lifestyles, whether it be for work or companionship. Given this evolutionary relationship, it is not surprising to see empirical evidence using physiological, behavioral, and psychological data supporting the positive health effects dog companions can have on their fellow humans (Allen, 2003; Allen et al., 1991; Charnetski et al., 2004; McNicholas et al., 2005; Schöberl et al., 2012; Sugawara et al., 2012; Toohey & Rock, 2011), although not all studies concur (Herzog, 2011; Saunders et al., 2017). Unfortunately, the human-dog relationship has not always fared well for dogs, especially for those that are consistently tied and neglected. Having guard and hunting dogs with little interaction is so deeply ingrained in East Hawaii, it is hardly challenged socially, politically, or legally. Our mixed methods research design contributes to previous findings on the human-dog relationship but more significantly, it allowed us to construct

a more comprehensive view of the context of dogs in East Hawaii. The qualitative and quantitative portions of our study, which were triangulated, revealed disparate attitudes about dog caretaking, with some humans regarding them as family members while others retain a more objectified view of dogs with little attachment.

The qualitative findings from the two main categories of participants, companion dog and guard dog keepers, resonate with Blouin's (2013) "dominionistic," "humanistic," and "protectionistic" cultural categorizations of human-canine relations. Similar to Blouin's (2013) respondents with humanists who regard dogs like children and are devoted to them, participants in this study also described the positive emotional influence of dogs. The dominionistic orientation helps us understand some of the participants who are fond of dogs and tend to their basic needs but clearly regard dogs as lower in the hierarchy. Dominionistic humans who value dogs' ability to protect, guard, and/or contribute to the hunt was echoed by several of the guard dog keepers who felt safer with a GD and could also rely on having food on the table. Further, the dominionistic participant is less likely to spend time or money on dogs, such as veterinary care for hunting accidents, and are more likely to house them outside.

As exhibited by the DAS, AAS, and qualitative data, many of the participants are animal advocates and several felt emotionally distressed by their inability to advocate in particular circumstances of animal abuse or neglect. Specifically, there were significant differences in the two surveys in which the companion dog keepers felt they could communicate with their dogs, which correlates to the deep emotional benefits some participants referred to in the qualitative interviews. In fact, the BP data was very revealing of the companion dog keepers' emotional response to animal cruelty. BP visibly increased when they recounted stories of overt animal neglect. Similarly, their feelings of helplessness in those situations also caused increases in BP. This is in line with Levin et al.'s (2017) work on the similarities of distressed responses to reports of animal and child abuse reflecting a deep evolutionary response to protect those that are vulnerable. However, the lack of nurturing received through cultural and familial mechanisms in *our* cultural context may override that evolutionary response where puppies as young as three months are still consistently chained, kept separated from other dogs, and ears and tails are docked at home.

### Summary for Practitioners

Systematically examining the health effects on both the dog and the human may have variable outcomes depending on the context of that relationship. A study found that pet keepers had greater self-esteem, were less lonely, and were more physically fit than non-pet keepers (McConnell et al., 2011). Our data revealed a small but intriguing correlation between a positive attitude toward animals and a decrease in BP. An early U.S. study found that pet keepers had lower systolic BP, lower plasma cholesterol and triglyceride counts; all important indicators of decreased risk for cardiovascular disease (Anderson et al., 1992). Herzog's (2011) entreaty that we should be careful about attributing pet ownership to good health echoes our findings. Our study contributes to the understanding of the human-animal bond by identifying the

relationship between *attitude* toward animals and heart health, and not just *having* an animal. According to McConnell et al. (2011), individuals that recognize the higher value of an animal are more likely to ascribe human-like characteristics to them, resulting in a heavier emotional and physical response to animal cruelty, which may explain why our participants had higher BP when recounting dog tragedies.

Dogs have evolved and been domesticated to be keenly responsive to humans and attuned to our physical and emotional needs (Beck & Katcher, 2003). In many cases, the relationship is very reciprocal whereby both the human and dog derive a deep physiological and psychological benefit. Unfortunately, in countless situations, it is a unidirectional relationship at best, in which the dog is bereft of any benefits from being with a human. Our participants felt education was crucial to addressing animal neglect. Education, which currently emphasizes Hawaiian reverence for plant life, *amakua* (deified ancestor manifested as some animals), and a spiritual connection with the rainforest and mountains, could incorporate respect for all animals that have been domesticated to be companions and not objects.

Current laws need to protect dogs from isolation and neglect with public health programs capitalizing on the human-animal bond by highlighting the health benefits. The Animal Legal Defense Fund has recently reported Hawaii to be in the bottom tier for animal protection laws, ranking 39 out of the 50 states (ALDF, 2021). McConnell et al. (2011) found that one of the significant benefits of animal friends is overall well-being but also increased social competency with other human beings. High rates of obesity, diabetes, and hypertension are prevalent health issues in Hawaii (Sugihiro et al., 2019) that can be improved by exercise involving dog walking. For example, a participant walked her guard dog once a year; however, the children liked playing with the chained dog. These common scenarios provide the opportunity for educators to focus on the positive mental and physical health outcomes of children bonding with dogs by walking them and playing ball. The increasing exposure to animal welfare in classrooms by our local humane society and spay/

neuter clinics may contribute to changing adult attitudes. Ameliorating the condition of hunting dogs can be addressed while maintaining the cultural significance of hunting. Workshops could establish the greater success of hunting dogs when well fed and protected from serious injury. Imperative to the immediate improvement of dogs' lives is state legislation implementing an acceptable length of, and time spent on, a tie-down. This would also make concerned individuals feel less vulnerable to neighbor retribution if laws were enacted. In addition to providing what is now minimal shelter, laws should include shade, which could be in the form of native plants, thereby contributing to other conservation efforts on the island. Current state legislation also does not protect dogs from guarding empty properties where they are only fed and watered several times a week, underscoring the need for legislative attention.

## Limitations

Despite concerted recruitment efforts including extending the study timeline, knocking on doors, accessing hunting websites, posting flyers in gun stores, and talking to hunters on hunting trails, we were unable to increase the number of participants in the GD group, which may have affected our results. Second, because of our unique multicultural setting and isolated geographic locale, the findings are not generalizable, although there are evident parallels to other rural settings.

## Conclusion

Our most notable finding is gaining a more comprehensive understanding of the attitudinal differences between people who have companion dogs and those who have guard and hunting dogs and how that impacts dog health and welfare. We provide evidence that supports previous studies that dog keepership, in circumstances where the human is bonded to the dog, is beneficial to humans. We found that the context of dog welfare, whether they were companionable

or noncompanionable, and constraints surrounding advocacy are strongly interrelated issues and reflect ideological and cultural tensions between those that have a more positive attitude and protectionistic approach toward animals, and dogs in particular. Cultural constructs of hunting increase our understanding of the more dominionistic attitudes toward dogs in this part of Hawaii. Similarly, examining the significance of having guard dogs in socioeconomically depressed areas reflects some of the more challenging areas of animal welfare. Notably, the lack of county and state policies leaves shelter agencies and community members without legal or social support to more safely advocate for dogs in distress. However, adequate nutrition, shelter, physical exercise, increasing mental/emotional stimulation, eliminating narcotics before a hunt, and safety in vehicles and the rainforest are key areas mentioned by our participants in which hunting and guard dogs' lives could be improved. These are all areas that need legal support to allow humane agencies and animal shelters to intercede, educate, and improve conditions in a collaborative manner with the community.

Finally, our survey and BP data indicate that having a positive attitude toward animals resulted in a modest decrease in BP, an important physical benefit. In contrast, the guard dog keepers had significantly higher diastolic BP than the companion dog keepers, a potential cardiovascular health risk. Elevated BP also reflected the emotional distress several of our companion dog keepers felt when recounting stories of animal abuse and neglect. Future research should consider the local context of the human-dog relationship when investigating variables that support human health and animal welfare. Overall, the empirical data derived from this study will be of particular value to animal advocates in addressing attitudes toward dogs in Hawaii.

## Notes

1. The Hawaiian Islands are populated by Native Hawaiians as well as significant numbers of Japanese, Chinese, and Filipinos whose ancestors were part of the

waves of migrant labor. Additionally, the descendants of European and American colonialists continue to reside on the islands as well as contemporary Americans from the continental United States. “Local” is a distinct cultural style associated with speaking Pidgin, eating certain foods, and following an island lifestyle. Being “local” is the outcome of the acculturation of the initial migrant populations with Native Hawaiians.

- The notation CD is used to denote companion dogs and C is used for companion dog keepers. GD is used for guard dogs and G is used for guard dog keepers.

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