Owner Sex and Human–Canine Interactions at the Park

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No potential conflict of interest was reported by the authors.

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Abstract

The purpose of this exploratory study was to investigate if and what types of differences exist between men and women when interacting with their dogs in a “natural” setting. In the case of this study, we defined “natural” as visiting a public park with their dog. To do this, we completed a series of 10-minute focal follows (n = 177) on human-canine dyads at local leashed and off leash dog parks from December 2018 to March 2019. Data collection included counting incidences of 14 specific interactions (i.e., “baby talks to dog” or “scolds/speaks harshly to dog”), observable demographics (sex, age cohort, sex of dog), and additional notes (i.e., extended play sessions, talking to other park visitors, cell phone use). Women were more likely to “baby talks to dog” and “speaks gently/whispers to dog”, while young adults were more likely to use “collar correction/jerks leash.” The results also suggest young adults may be more likely to “throws toy/plays with dog” though more data are needed to confirm. Given the increase in
invested pet dog ownership, we suggest that sex differences in interactions with pet dogs mirror
the literature on sex differences in human parenting. This is particularly relevant as decreasing
birth rates and climbing pet ownership give rise to the practice of applying parenting strategies to
pets, suggesting the need to better understand potential welfare concerns that may mirror those in
the parenting literature.

Keywords: dogs, sex, age, pet parenting, focal follows
Introduction

The purpose of this exploratory study is to investigate if and what types of differences exist between men and women when interacting with their dogs in a “natural” setting. In the case of this study, we define “natural” as visiting a public park with their dog. This is because the park provides the ability to observe these interactions in a mostly nonintrusive way, with little to no immediate influence on the owner’s behavior (i.e., they are not aware of being observed and less likely to “perform” for the researcher). While literature exists observing sex and gender differences in human-canine dyads (i.e., Kotrschal, Schöberl, Bauer, Thibeaut, & Wedl, 2009; Prato-Previde, Fallani, & Valsecchi; 2006), this is the first known study to attempt to observe these interactions without observant awareness and the potential performative biases that knowledge can induce.

The American Pet Products Association (APPA) estimates Americans will have spent over $75 billion in 2019, with increases in food, medication and supplies, veterinary care, and other services like training, grooming, and pet sitting (APPA, 2019). This estimate constitutes a nearly five-fold growth since the association first began tracking the pet market, with the most notable increase over the last decade. Likewise, while cats, fish, and small animals (i.e., hamsters, ferrets, gerbils), increase in popularity, dogs continue to be the most commonly kept pet in American homes (APPA, 2019; Statista, 2019).

Reflecting these trends in spending, a phenomenon known as pet parenting has been noted in previous literature (Laurent-Simpson, 2017; Owens & Grauerholz, 2018; Volsche, 2018a). These
human-canine relationships often reflect Blouin’s (2013) “humanistic” orientation toward dogs, with its emphasis on elevating the dog’s status to one of cherished pet or child, and the owner’s use of “parent” as part of their identity within the relationship (Volsche, 2018a; Volsche & Gray, 2016). As a result, people who view themselves as pet parents report an increase of temporal, financial, and emotional investment, as well as a focus on species-specific needs (Volsche, 2018b). The identity of “pet parent” can alter the ways in which an owner may invest their time and money, and the presence of a pet may also influence a single person’s dating choices (Gray, Volsche, Garcia, & Fisher, 2015), with women perceiving men with dogs as potentially more caring mates.

Veevers (1985) identified three different social meanings for pets: “pets as statements,” “pets as social lubricants,” and “pets as people.” The role of “pets as people” includes the concept that dogs may serve as surrogate children or replace or supplement missing or insufficient human relationships. This supports the value of visiting a dog park as a form of relationship building with the dog as “friend” or “child.” Additionally, Bekoff (2018) discusses the frequency with which visitors to the park enjoy human-human interactions while observing their dogs playing, seeking advice from other dog owners on nutrition and behavior, and generally enjoying a social outing. This suggests the dog park serves as a “social lubricant” by bringing together individuals with a shared interest in dogs for social contact. As a result, the amount of time spent, combined with the type of interactions one displays, may help individuals make a “statement” about themselves as a particular type of dog owner (whether “pet parent” or other role).
While present in multiple interspecific relationships, the deeply invested practice of pet parenting is most common with people who own dogs (Volsche, 2018b), and results in notable parenting styles that appear to mirror those in the human parenting literature (Herwijnen, Borg, Naguib, & Beerda, 2018; Volsche & Gray, 2016). For example, Volsche and Gray (2016) found that women who reported higher attachment to their pet dogs also reported slightly elevated uses of aversion when training (i.e., saying “no” or withholding a treat for misbehavior), but did not report the use of extreme aversions or abuse (i.e., jerking the dog’s leash/“collar corrections” or hitting the dog). This mirrors their childed counterparts who use authoritative parenting styles with a balance of warmth/support and discipline/guidance (for a discussion of this overlap see Cimarelli, Turcsán, Bánlaki, Range, & Virányi, 2016). Herwijnen and colleagues (2018) found similar authoritative parenting styles among a sample of Dutch dog owners in which responsiveness to the dog’s needs and emotions was present. Relatedly, Schöberl et al. (2012) found that owner-dog cortisol levels in relationships where dogs are viewed as “meaningful companions” and “social partners” mirror those of human parent-offspring attachment when dogs are removed from their caregivers.

The decision to apply parenting strategies to one’s dog also has implications for relationships with other people. In 2013, Steiner and colleagues found that the investment of care from a new intimate partner toward an existing pet in the home is often less than if a couple adopts a new pet together. This is reflective of men’s investment differences toward biological children and stepchildren in the home (Gray & Anderson, 2010). Additionally, in a survey of approximately 1200 single Americans, women reported perceiving men with pets (especially dogs) as more caring and likely to make better partners and future fathers (Gray et al., 2015).
Surprisingly, with this data on pet dogs, the development of pet “parent” as an identity, and the application of parenting strategies toward pet dogs in the home, little work has been done to investigate sex and gender differences in these relationships. This may be in part due to the difficulty in motivating men to participate in research on pets, attachment, and interactions (see Herzog, 2007 for a discussion). Commonly, women are more likely to complete surveys and volunteer to participate in studies involving dogs and other pets. This results in the need to specifically target men as a sample population. In a study designed to understand men’s attachment to their dogs, Blazina and Kogan (2019) found that men often have difficulty verbalizing their relationships with their dogs, and frequently underreport or understate these attachments as a result of conforming to norms of masculinity. This may explain the difficulty in obtaining men as participants in a generalized sample. This also speaks to the importance of utilizing behavioral research to understand sex and gender differences, as self-report surveys may simply not be the best way to approach these questions.

A difference in human-dog interaction style between men and women would make evolutionary sense. Archer (2019) completed an extensive review of the literature on human psychological sex differences and found women were more likely to display social and emotional skills related to caretaking while men were more likely to seek status and engage in impulsive displays of skill. Likewise, human parenting investment is often divided between direct care (i.e., feeding, holding, grooming) and indirect care (i.e., obtaining resources, providing shelter) with women being more involved in direct care and men more involved in indirect care (Gray & Anderson, 2010; Hrdy, 2009; Kleiman & Malcolm, 1981). Miller et al. (2009) found that women’s, but not
men’s, oxytocin (OT) levels responded to interactions with their dogs when arriving home after work. This evidence supports potential sex differences in human-canine bonding, as the authors hypothesized that sex differences in the style of greeting and ways of interacting with their dogs may impact changes in OT versus other hormones (i.e., cortisol, testosterone, progesterone).

The minimal literature on sex and gender differences in human-canine interactions supports this to some extent. For example, Prato-Previde, Fallani, and Valsecchi (2006) found that women were more likely to use “motherese” (a form of baby-talk consisting of high-pitched vocalizations and repetition of words) to soothe their stressed dogs, while men were more likely to engage silently, using physical contact to soothe rather than vocalizations. These differences, together with personality differences, were also found to influence attachment styles between owners and their dogs. Kotrschal et al. (2009) found that female owners were higher in neuroticism and hence, more likely to touch their pets while male owners were higher in extraversion and more likely to engage in shared activities. Interestingly, male dogs with female owners also responded by being less sociable with strangers. Similarly, while they did not explicitly find that owner gender influenced interaction style, Cimarelli et al. (2016) found that owners who displayed more warmth influenced a dog’s likelihood of seeking support in a threatening situation. Combined with Archer’s (2019) findings that women tend to display more warmth and empathy; we would expect that women are more likely to display warmth toward their dogs.

Considering the literature above, we hypothesized that women would be more likely to engage in direct interactions and caretaking displays while men would be more likely to engage in status
displays (demonstrations of “control” over dog such as collar corrections or hitting) and rough and tumble play. We also hypothesized that age cohort may influence these interactions, with younger individuals (especially men) more likely to be concerned with demonstrations of strength, control, and masculinity involving their dogs (as suggested by Blazina & Kogan, 2019) and middle-aged women being more likely to engage in maternal displays (i.e., kissing and hugging, redirecting inappropriate behavior).

Methods

Observations and Data Collection

Observations and data collection occurred at various public dog parks in the Las Vegas metropolitan area from December 2018 to March 2019. All parks were in urban and suburban communities, and consisted of dirt/sand, pea gravel, or grass (natural, and in some cases, artificial). Each observation consisted of a 10-minute focal follow of a unique human-canine dyad. Human observants were limited to individuals who appeared to be healthy and age 18 years or older, who did not display a visible disability (e.g., the dog was not a service dog), and who voluntarily visited a public dog park. Dog observants were determined based upon who was holding the leash, or in cases of off leash interactions, whom they arrived with at the park or interacted with the most during the target follow. While we acknowledge visiting dog friendly parks immediately impacts sampling (more likely to be invested pet dog owners), we accept this bias since our goal is to investigate differences in invested owners (and potential pet parents).
Since we are answering a question regarding sex differences in invested owners, we feel this is a negligible sampling issue.

Initial data included start and stop time of observation, date, day of week, park type (leashed or off leash), whether the dog was leashed, and whether other dogs related to the observed dyad were present (i.e., the owner arrived with two dogs). The observed dog’s sex (“male,” “female,” or “uncertain”) was collected if visible (intact male, leg lifting, etc.), though most observations list “uncertain” as sexing a dog is difficult from a distance. The age group of the human observed was generalized as “young adult,” “middle aged adult,” and “elderly adult” and based upon outward appearance of dress style, hair color and style (i.e., presence and amount of gray), visible signs of aging (i.e., wrinkles), and behavior (i.e., use of cell phone, mode of locomotion). The sex of the human observed (“male,” “female,” or “uncertain”) was recorded based upon displays of masculinity and femininity, dress and hair type, and presence of secondary sex characteristics (i.e., facial hair, breasts, etc.). In order to account for the potential presence of transgendered, non-binary, or queer individuals, an option for “uncertain” was also provided to record interactions in which the person’s sex could not be confidently determined (although this only occurred in six observations).

During each focal follow, 14 specific interactions were counted using a binary hash mark count (one hash mark each time an interaction occurred during the follow). If interactions occurred for more than 30 seconds (extended), a dash was used to note this distinction (for example, in one instance, a young adult man played fetch for nearly the full 10 minutes). The specific interactions were: “pets dog on head,” “calls dog,” “hugs/kisses dog,” “baby talks to dog,” “throws toy/plays
with dog,” “gives dog food/treats,” “speaks gently/whispers to dog,” “pets dog on rear,” “dog
comes when called,” “scolds/speaks harshly to dog,” “hits/spanks dog on rear,” “hits dog on
shoulder/head,” “collar correction/jerks leash,” and “leashes dog.”

Finally, space was available on the data collection sheets for other notes during each follow to
allot for unexpected interactions, environmental conditions (weather), and notations regarding
equipment, cell phone use, extended conversations with other people, etc. As discussed in the
Results, this space became equally valuable in completing the observations when compared with
the specific behaviors observed and counted.

Research Assistant Recruitment and Training

This study was designed to provide the opportunity for field training and research experience to
undergraduates at the institution under the supervision of the first author. Research assistant
recruitment occurred via word of mouth and through advertisement in various anthropology
courses during Summer and Fall 2018 semesters, and data collection occurred from December
2018 to March 2019. Interested parties emailed the first author, who then arranged a meeting to
discuss the applicant’s qualifications and reasons for joining the project. To qualify to work on
the project, all applicants were required to provide evidence of Social/Behavioral CITI
Certification training. Additionally, all applicants displayed some level of experience working
with or observing dogs, demonstrated attention to detail, committed to time and ability to collect
a minimum of 30 observations, and conveyed a willingness to attend meetings, field trainings,
and other team events as relevant. There were no restrictions on applicants regarding age, major, or sex, though most respondents were female anthropology majors.

Ultimately, seven research assistants were recruited and trained, and five completed a minimum of 30 complete observations (coauthors). All research assistants attended a mandatory field training at a local, off leash dog park. The chosen park consisted of open space in which dogs are expected to be leashed, as well as three fenced, off leash runs designated for 1) large dog play (35 lbs. and over), 2) small dog play (35 lbs. and under), and 3) empty to allow for grass and other foliage to grow back. Training included a discussion of canine body language and human-canine interactions; full details of the research protocol, including line-by-line explanation of how to complete the data collection sheet; and supervised observations and discussion of in situ interactions of both large and small dog runs (i.e., real time discussions of what we saw as behaviors occurred). The training concluded with research assistants completing their first set of data collection so questions could be addressed.

Once research assistants completed training, they collected data ad libitum. The research team met twice during data collection to allow for review of collection sheets and feedback on quality of notations from the first author. Likewise, the first and last author (acting as project coordinator) reviewed data collection to be sure an even number of men and women were being observed. Finally, coding and data analysis were completed by the first and last author.

It is worth noting that any time behavior observation work is done, researchers face a dilemma regarding data collection. Utilizing one researcher to complete all follows, with a second
researcher coding recordings of the interactions can result in consistency. This assumes, however, that there is no variation in an observer’s attention to detail, emphasis, or implicit bias from day to day. Since, the purpose of this study included providing an opportunity for behavioral observation training to undergraduate researchers, we opted to include multiple researchers to obtain a larger sample in the time available. While this may reduce inter-rater reliability, it provided for more follows to be completed in a wider range of parks. Likewise, in order to achieve an exempt IRB status, video recording was deemed a hinderance during study design. As a result, multiple research assistants, completing multiple focal follows serve to avoid observer bias. This is acknowledged as a potential limitation of the work, and it is considered in the Discussion.

Consent and IRB Approval

Given the public nature of the data collection sites, this study was deemed exempt by the institution’s Social/Behavioral IRB (protocol #1239311-1). This means that formal consenting processes or direct interactions were neither necessary nor encouraged. As such, research assistants were instructed not to approach or directly interact with the dyads they observed. Should a curious observant approach the research assistants, team members were instructed to identify themselves, provide a copy of the “Exempt Research Study Information Sheet,” and discontinue the follow to avoid capturing data on aware subjects.

Analysis
Upon collection of data sheets, the first and last author numerically coded all data and recorded the results in Google Sheets (a freeware counterpart to Microsoft Excel). Initially, all data collection sheets were coded and recorded, with incomplete observations (those that lasted less than nine minutes) and sheets with missing data (i.e., no human sex recorded) later deleted from the file. The final, “clean” Google Sheet was then exported to IBM’s SPSS V.25 for statistical analysis.

We used non-parametric tests (Mann-Whitney $U$-test for “sex” and Kruskall-Wallis for “age cohort”) on the 14 specific interactions which we counted. Unfortunately, the density of our data makes it inadvisable to use parametric tests to determine whether an interaction existed between “sex” and “age cohort.” When analyzing and reporting data, we sought results with $p$-values of .05 or lower. However, acknowledging the growing debate on accepting slightly higher values as suggestive of data trends (for discussion see Amrhein, Greenland, & McShane, 2019; Halsey, 2019; Olsson-Collentine, van Assen, & Hartgerink, 2019), we also report $p$-values between .05 and .075. We also include effect sizes for the Mann-Whitney and Kruskall-Wallis tests for deeper consideration of potential trends (see Sullivan & Feinn, 2012). Effect sizes allow us to consider the actual size of the differences. In general, an effect size up to and including $r = 0.19$ is considered extremely small, suggesting that the difference between groups is minimal ($r = 0.2$ is small; $0.5$ is medium; $0.8$ is large).

Finally, thematic analyses of additional notes were completed to determine the presence of other behaviors and interactions not otherwise captured. This included the frequency of cellular phone use by owners, presence of conversations between various individuals, interacting with other...
dogs (owner or dog), and frequency with which dog checked-in with or ignored the owner during their visit to the park.

Results

A total of 219 focal follows were collected between December 2018 and March 2019. Of those, we excluded 42 as incomplete (either missing data or shorter than 10 minutes in length). This resulted in a remaining sample of 177 10-minute focal follows of human-canine dyads. We observed an equal number of men (n = 87, 49.2%) and women (n = 84, 47.5%), with six observations reporting uncertainty regarding owner sex (3.4%). Likewise, age cohort was relatively equally distributed with slightly more “middle age adults” (n = 70, 39.5%) than “young adults” (n = 58, 32.8%) or “elderly adults” (n = 49, 27.7%; Table 1 provides the distribution of sex and age cohort for our sample). Efforts were made to visit an equal number of park types (“leashed,” n = 64, 36.2%, and “off leash,” n = 113, 63.8%). However, due to the comfort level of some research assistants, more visits were made to “off leash” parks. This is likely due to the ability to observe from a distance while the dyad being observed remained in an enclosed area.

Of the 14 specific interactions counted, there was no statistical significance in owner sex except for “baby talks to dog” (U = 3193.00, p = .062, r = .143) and “speaks gently/whispers to dog” (U = 3155.50, p = .055, r = .147). In both cases, women were slightly more likely to engage in these behaviors than men. This concurs with previous research on sex differences in evolutionary psychology (Archer, 2019), and we consider these results further in the Discussion section. Despite p-values slightly over .05 and very small effect sizes of these differences, anecdotal
observations made by the team members suggest these effects would become stronger with more observations. Table 2 contains a full list of Mann-Whitney results on the 14 specific interactions by sex.

Of the 14 specific interactions counted, there was also no statistical significance in age cohort except for “collar correction/jerks leash” which was more likely among young adults ($H = 6.913, p = .032, r = .028$). “Throws toy/plays with dog” may also be more likely among young adults ($H = 5.108, p = .078, r = .018$), but did not quite trend close enough to our p-value threshold for us to feel confident more data would not change the results. Anecdotal observations made by the team suggest this may be the case, and it would stand to reason that younger individuals have more energy and physical health to keep up with their young dogs. However, it is equally reasonable that older adults come to the park specifically to give their dogs room to run, and throwing a toy makes this easy to accomplish with less physical energy expenditure. Table 3 contains a full list of Kruskal-Wallis results on the 14 specific interactions by age cohort.

In order to rule out an interaction between owner sex and age cohort, we hoped to complete a factorial two-way ANOVA for each of the 14 specific interactions. However, due to the density and binary counts of our data, non-parametric tests were more appropriate. As we are not aware of any non-parametric equivalent to an ANOVA, we did not complete this analysis and acknowledge it is a potential limitation of our study.

In addition to the 14 specific interactions, “other notes” were collected on the observations. These notes regarded the type of equipment (collar types, harnesses, leashes, doggy strollers),
cellular phone usage, regularity of dogs “checking in” with their owners (see Horn, Huber, & Range, 2013, for a discussion on dogs and the secure base effect), and other personal observations from the research assistants. While this is subjective and less consistent, some notable trends still emerged. For example, more men \((n = 62)\) than women \((n = 16)\) were observed ignoring their dogs for part or all the observation. Relatedly, dogs were more likely to ignore their male owners \((n = 30)\) than their female owners \((n = 10)\). The combination of these observations could indicate a difference in the attachment style created by men or women and their dogs and is worthy of additional research. Likewise, these differences further support the sex differences found, as it makes sense that attentive women owners would be more likely to baby talk to or hug/kiss their dogs.

**Discussion**

In this exploratory study, we investigated sex and age cohort differences in owner interactions with dogs at the park. We hypothesized that women would be more likely to engage in direct interactions and caretaking displays while men would be more likely to engage in status displays (demonstrations of “control” over dog) and rough and tumble play. We also hypothesized that younger men would be more concerned with demonstrations of masculinity involving their dogs (as suggested by Blazina & Kogan, 2019) and middle-aged women being more likely to engage in maternal displays (i.e., kissing and hugging, redirecting inappropriate behavior). While data constraints limited our ability to test for an interaction between “owner sex” and “age cohort,” some interesting sex differences presented themselves.
Our findings are consistent with Prato-Previde et al.’s (2006) study that women are more likely to engage in motherese and other forms of verbal communication, touching, and kissing their dogs. Likewise, a thematic review of the “other notes” suggests that men are more likely to ignore their dogs for periods of time at the park, while women may be more prone to “helicopter parent” their dogs. Considering prior work on the secure base effect and dogs (see Horn et al., 2013), it is possible these observations combine to suggest men and women cultivate different attachment styles in their dogs. This would be consistent with Kotrschal et al.’s (2009) findings that women are higher in neuroticism and men are more extraverted, resulting in different interaction and attachment styles with their dogs. However, more research is needed to confirm this hypothesis.

Since women are more likely to engage, at least publicly, in direct care of their offspring and displays of empathy (Archer, 2019; Gray & Anderson, 2010; Hrdy, 2009) it stands to reason that this difference would translate to interactions with their pet dogs. This remains particularly true in the case of parenting pet dogs, when there may not be children in whom to invest these energies (Volsche & Gray, 2016). This would also provide an explanation as to why there is no sex difference in “throws toy/plays with dog,” but there is a potential age cohort difference with young adults more likely to engage in play with their dogs ($H = 5.108, p = .078$). Elderly adult dog owners may be more likely to be parents and empty nesters, while young adults and middle age adults may be more likely to be 1) practicing with a dog for future parenting roles or 2) childless/childfree individuals choosing to have dogs in lieu of children (Gray et al., 2015; Laurent-Simpson, 2017; Owens & Grauerholz, 2018; Volsche & Gray, 2016; Volsche, 2018a, 2018b). This may also explain the age cohort difference with young adults being more likely to
use “collar correction/jerks leash” \( (H = 6.913, p = .032) \), as young adults may be more sensitive to the judgments of others regarding their dog’s behavior. However, this is speculation and needs more research to confirm.

Additionally, since these interactions would be mitigated by species-specific needs (Volsche, 2018a), young adult women who visited the park with their dogs likely chose dogs over other species with this type of relationship in mind (for example, a dog is perceived to require more play and training than a cat). As such, based upon additional notes regarding the types of play, we found no sex differences in how men and women played with their dogs at the park (“throws ball/fetch,” men \( n = 21 \), women \( n = 14 \); “plays chase,” men \( n = 4 \), women \( n = 6 \); “wrestles,” men \( n = 1 \), women \( n = 1 \)). This may explain why our hypothesis that men would engage more in rough and tumble play was not supported. It is also possible that visiting the dog park engages owners in a form of identity communication which preferences displays of “good owner” and overcommunication of one’s role (see Eriksen, 2010, for a discussion of identity communication) or that visiting the park simply attracts a pet owner who is more invested in spending quality time with their dog.

Our findings on owner sex differences support the hypothesis that women will be more likely to engage in direct interactions and caretaking displays (ignored the dog less, more likely to “baby talks to dog” and “speaks gently/whispers to dog”, played chase and fetch with dog). Though our findings on men were more variable as they were no more likely to “throws toy/plays with dog” or ultimately, wrestle, chase, or play fetch. However, this may be an artifact of the data collection, as research assistants noted anecdotally that it seemed young adult men more
frequently had dogs off leash in leashed parks and demonstrated a dog’s training (giving
commands, asking for tricks such as climbing rocks). This would also be more consistent with
Blazina and Kogan’s (2019) findings on demonstrations of masculinity involving young men and
their dogs.

As with any research, there are limitations with this study. These include ultimate sample size,
the choice to use multiple data collectors and no recordings, and the sampling bias toward
invested dog owners who already self-sampled by visiting a public park. Most of these study
design choices were made in order to expedite the project as an undergraduate training. Future
work would benefit from a more extensive, detailed design and the lead author is already in
process of making changes for future, related work.

The use of binary hash marks to record each occurrence of interaction rather than measuring the
length of time spent engaging in an interaction created a tight distribution of results. Though the
data were normally distributed, the extremely small standard deviation meant that non-
parametric tests were the best choice for analysis. Future work should focus on time spent
engaging target interactions, potentially producing a wider distribution of data that can be
analyzed via \( t \)-tests and ANOVA. While we acknowledge these limitations, it is relevant that our
findings are consistent with or supported by previous literature on sex differences and human-
canine interactions. Accordingly, we strongly suspect that even with a larger sample size, two
observers, and video recordings, our findings would be similar, and perhaps, even stronger.

Conclusion
As financial, temporal, and emotional investment in pet dogs continues to increase, more owners are beginning to negotiate familial, and even parent-child, relationships with their dogs. As such, we should expect to see sex and age cohort differences reflective of their childed counterparts, with variations in behavior that are attentive to species-specific needs while also echoing differences found in the parenting and evolutionary psychology literature. Using 10-minute focal follows of human-canine dyads at public dog parks, our study is one of the first to demonstrate these sex and age cohort differences may exist, while also establishing that it is possible to complete non-intrusive observations in a “natural” setting of invested dog owners and their dogs. Future research should seek more nuanced understandings of these interactions, utilizing behavior observation methods to investigate human-canine relationships using naturalistic methods.

References


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<th>Age Cohort</th>
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<td>25</td>
<td>33</td>
<td>87</td>
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<td>(29.8%)</td>
<td>(51.2%)</td>
<td>(19%)</td>
<td>(47.5%)</td>
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<td>6</td>
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<td></td>
<td>(66.7%)</td>
<td>(33.3%)</td>
<td>(0%)</td>
<td>(3.3%)</td>
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<tr>
<td>Total by Age Cohort</td>
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<td>49</td>
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<td>(32.8%)</td>
<td>(39.5%)</td>
<td>(27.7%)</td>
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Table 2. Full list of Mann-Whitney results of 14 interactions by gender.

<table>
<thead>
<tr>
<th>Interaction Type</th>
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<th>µ rank: women</th>
<th>U score</th>
<th>p-value</th>
<th>r</th>
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<td>Pets dog on head</td>
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<td>88.31</td>
<td>3460.00</td>
<td>0.508</td>
<td>0.051</td>
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<tr>
<td>Calls dog</td>
<td>80.22</td>
<td>91.99</td>
<td>3151.00</td>
<td>0.102</td>
<td>0.125</td>
</tr>
<tr>
<td>Hugs/Kisses dog</td>
<td>85.41</td>
<td>86.61</td>
<td>3603.00</td>
<td>0.732</td>
<td>0.026</td>
</tr>
<tr>
<td>Baby talks to dog</td>
<td>80.70</td>
<td>90.53</td>
<td>3193.00</td>
<td>0.062*</td>
<td>0.143</td>
</tr>
<tr>
<td>Throws toy/plays with dog</td>
<td>89.55</td>
<td>82.33</td>
<td>3345.50</td>
<td>0.265</td>
<td>0.085</td>
</tr>
<tr>
<td>Gives dog food/treats</td>
<td>87.30</td>
<td>84.65</td>
<td>3540.50</td>
<td>0.445</td>
<td>0.058</td>
</tr>
<tr>
<td>Speaks gently/whispers to dog</td>
<td>80.27</td>
<td>91.93</td>
<td>3155.50</td>
<td>0.055*</td>
<td>0.147</td>
</tr>
<tr>
<td>Pets dog on rear</td>
<td>86.12</td>
<td>85.88</td>
<td>3643.50</td>
<td>0.966</td>
<td>0.003</td>
</tr>
<tr>
<td>Dog comes when called</td>
<td>81.88</td>
<td>90.27</td>
<td>3295.50</td>
<td>0.205</td>
<td>0.097</td>
</tr>
<tr>
<td>Scolds/speaks harshly to dog</td>
<td>83.94</td>
<td>88.13</td>
<td>3475.00</td>
<td>0.299</td>
<td>0.079</td>
</tr>
<tr>
<td>Hits/spanks dog on rear</td>
<td>86.47</td>
<td>85.52</td>
<td>3613.50</td>
<td>0.582</td>
<td>0.042</td>
</tr>
<tr>
<td>Hits dog on shoulder/head</td>
<td>86.00</td>
<td>86.00</td>
<td>3654.00</td>
<td>1.00</td>
<td>0.000</td>
</tr>
<tr>
<td>Collar correction/jerks leash</td>
<td>86.93</td>
<td>85.04</td>
<td>3573.00</td>
<td>0.684</td>
<td>0.031</td>
</tr>
<tr>
<td>Leashes dog</td>
<td>83.91</td>
<td>88.17</td>
<td>3472.00</td>
<td>0.204</td>
<td>0.097</td>
</tr>
</tbody>
</table>

*Notes statistically significant interactions observed. As mentioned in text, we accepted p-values between .075 and .05 as “trending” based upon current debates in the literature.
Table 3. Full list of Kruskall-Wallis results of 14 interactions by age cohort.

<table>
<thead>
<tr>
<th>Interaction Type</th>
<th>μ rank: young adults</th>
<th>μ rank: middle age adults</th>
<th>μ rank: elderly adults</th>
<th>H score</th>
<th>p-value</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pets dog on head</td>
<td>88.47</td>
<td>92.19</td>
<td>85.08</td>
<td>0.686</td>
<td>0.709</td>
<td>0.008</td>
</tr>
<tr>
<td>Calls dog</td>
<td>93.26</td>
<td>88.21</td>
<td>85.08</td>
<td>0.779</td>
<td>0.677</td>
<td>0.007</td>
</tr>
<tr>
<td>Hugs/Kisses dog</td>
<td>86.47</td>
<td>89.61</td>
<td>91.12</td>
<td>1.073</td>
<td>0.585</td>
<td>0.005</td>
</tr>
<tr>
<td>Baby talks to dog</td>
<td>85.78</td>
<td>91.96</td>
<td>86.72</td>
<td>1.077</td>
<td>0.584</td>
<td>0.005</td>
</tr>
<tr>
<td>Throws toy/plays with dog</td>
<td>98.24</td>
<td>88.36</td>
<td>78.98</td>
<td>5.108</td>
<td>0.078</td>
<td>0.018</td>
</tr>
<tr>
<td>Gives dog food/treats</td>
<td>89.08</td>
<td>89.16</td>
<td>88.67</td>
<td>0.012</td>
<td>0.994</td>
<td>0.011</td>
</tr>
<tr>
<td>Speaks gently/whispers to dog</td>
<td>87.82</td>
<td>89.56</td>
<td>89.60</td>
<td>0.072</td>
<td>0.965</td>
<td>0.011</td>
</tr>
<tr>
<td>Pets dog on rear</td>
<td>95.41</td>
<td>88.61</td>
<td>81.97</td>
<td>3.261</td>
<td>0.196</td>
<td>0.007</td>
</tr>
<tr>
<td>Dog comes when called</td>
<td>87.97</td>
<td>88.02</td>
<td>91.61</td>
<td>0.227</td>
<td>0.893</td>
<td>0.010</td>
</tr>
<tr>
<td>Scolds/speaks harshly to dog</td>
<td>91.93</td>
<td>91.54</td>
<td>81.91</td>
<td>4.730</td>
<td>0.094</td>
<td>0.016</td>
</tr>
<tr>
<td>Hits/spanks dog on rear</td>
<td>87.50</td>
<td>91.29</td>
<td>87.50</td>
<td>4.638</td>
<td>0.098</td>
<td>0.015</td>
</tr>
<tr>
<td>Hits dog on shoulder/head</td>
<td>89.00</td>
<td>89.00</td>
<td>89.00</td>
<td>0.000</td>
<td>1.00</td>
<td>0.011</td>
</tr>
<tr>
<td>Collar correction/jerks leash</td>
<td>97.21</td>
<td>82.50</td>
<td>88.57</td>
<td>6.913</td>
<td>0.032*</td>
<td>0.028</td>
</tr>
<tr>
<td>Leashes dog</td>
<td>90.69</td>
<td>89.29</td>
<td>86.59</td>
<td>0.915</td>
<td>0.633</td>
<td>0.006</td>
</tr>
</tbody>
</table>

* Denotes a statistically significant interaction.