The Social Catalyst Effect of Dog Walking:

A Causal Analysis of Verbal and Non-Verbal Interactions Across Personality Types

Mario P Nonog Jr.

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University of California, San Diego

Erik Johnson, Ph,D

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Abstract

This study investigates whether walking with a dog causally enhances social interactions, focusing on both the quantity and quality of verbal and non-verbal exchanges. Using data from 99 walking sessions across varying locations, we explore the influence of companion animals on human engagement in casual, public settings.

To estimate causal effects, we apply robust statistical methods including regression adjustment and propensity score matching. These techniques allow us to isolate the impact of walking with a dog while accounting for covariates such as location, personality, and time of day. Our analysis also considers how personality types—specifically introverts and ambiverts—moderate these social effects.

Results indicate a statistically significant overall increase in verbal interactions for individuals walking with a dog, particularly among ambiverts. Additionally, there was a decrease in non-verbal interactions and an increase in the duration of verbal interactions. Findings reveal the nuanced role of dogs as social facilitators, with implications for public health, urban design, and mental well-being.

1. Introduction

Social interaction is foundational to human health and community life. While structured settings like workplaces and schools are traditional sites for engagement, casual public spaces such as parks, neighborhoods, and sidewalks also provide essential opportunities for connection. These everyday environments serve as platforms for spontaneous interactions that can enhance a sense of belonging and build community cohesion.

One potentially influential but under-researched factor in these spaces is the presence of dogs. Walking with a dog has been anecdotally linked to higher rates of social encounters. This study rigorously tests whether walking with a dog causally increases the frequency and/or quality of human social interaction by analyzing both the quantity and duration of verbal and non-verbal exchanges across diverse contexts and personality types.

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2. Literature Review

Previous studies suggest that companion animals function as social lubricants (McNicholas & Collis, 2000), with dogs especially helping to reduce social inhibition and spark conversations with strangers. These interactions are often spontaneous and foster a sense of community, which can be particularly valuable in urban environments where casual encounters may be otherwise limited.

Researchers have observed that people walking dogs tend to receive more attention and engage in more conversations with passersby than those walking alone. These patterns support the notion that dogs facilitate openness in social settings. Their presence creates a non-threatening focal point that invites connection and conversation.

However, many of these findings are correlational and do not account for confounding variables such as personality, walk setting, or time of day. The lack of causal identification in much of the literature makes it difficult to discern whether dog walking itself is responsible for increased interaction or if more sociable individuals are simply more likely to own dogs and initiate contact.

Causality is especially important to establish when developing interventions or public policy based on these findings. Without accounting for alternative explanations, recommendations based solely on correlation could misdirect resources or overstate the effects of dog ownership on social outcomes.

Moreover, individual traits—particularly introversion versus ambiversion—may shape the effect a dog has on one's social behavior. This study advances the literature by combining naturalistic field data with robust causal methods to examine not only whether dog walking increases interaction but also for whom and in what settings these effects are most pronounced.

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3. Methodology

3.1 Study Design

Data was collected from 99 walking sessions, with 61 involving a dog and 38 without. Each session included observational coding of verbal interactions (conversations or greetings), non-verbal interactions (smiles, waves, nods), interaction duration (total minutes of verbal engagement), and contextual data such as location (park, neighborhood, store), day of the week, and personality classification.

3.2 Participants

The participant pool consisted primarily of individuals who identified as either introverted or ambiverted. There were 71 introverted participants, of whom 42 walked with a dog and 29

walked without. Additionally, 24 participants were classified as mix or ambiverts, with 16 walking with a dog and 8 without. Although a small subset of 4 individuals identified as extroverted, they were excluded from the analysis due to the insufficient sample size to allow for meaningful statistical comparison. This categorization enabled a clearer focus on how different personality types may influence or moderate the effect of dog walking on social interactions.

3.3 Variables

The primary treatment variable in this study was whether the participant walked with a dog or not. This binary indicator (yes/no) formed the foundation for evaluating causal effects on social interactions. The outcome variables included both quantitative and qualitative metrics: the number of verbal and non-verbal interactions observed during the walk, the total duration of verbal interactions, and the average duration per interaction. These measures provided insight into both the frequency and quality of social exchanges.

To control for potential confounding factors, we included several covariates in our analysis. These consisted of personality type (introverted or ambiverted), walk location (e.g., neighborhood, park, grocery store), day of the week, and the time at which the walk occurred. By accounting for these variables, we aimed to isolate the effect of dog walking on social behavior more accurately.

3.4 Statistical Methods

To estimate the causal effect of walking with a dog on social interaction, we employed three complementary causal inference approaches. The first method was the naive difference in means, which simply compared average outcomes between individuals who walked with a dog and those who did not. While straightforward, this method does not account for potential confounding variables and thus may yield biased estimates.

The second method involved regression adjustment, where linear regression models were used to control for potential confounders, such as personality type, walk location, and day of the week. By statistically accounting for these differences between groups, the regression model offers a more refined estimate of the causal effect.

Lastly, we implemented propensity score matching. This technique matches individuals who walked with a dog to similar individuals who did not, based on their estimated propensity to walk with a dog given observed covariates. This approach helps to balance the treatment and control groups, allowing for the estimation of the Average Treatment Effect on the Treated (ATT), which provides insight into the effect for those most likely to walk with a dog.

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4. Results

4.1 Overall Social Interaction Effects

To assess the overall impact of walking with a dog on the number of verbal interactions, we employed three statistical methods. The naive difference in means, which compares the average number of interactions without adjusting for any covariates, revealed a gain of 0.48 verbal interactions—a 24.6% increase. However, this effect was not statistically significant.

The regression adjustment approach, which controls for variables such as personality type, walk location, and day of the week, yielded a higher effect estimate. Specifically, it showed a gain of 0.80 verbal interactions, translating to a 41.0% increase, which was statistically significant with a p-value of 0.044.

The third method, propensity score matching, aimed to pair individuals who walked with a dog with those who did not but shared similar characteristics. This method estimated a very

modest increase of 0.05 verbal interactions, or a 2.7% rise, which was not statistically significant ($p = 0.849$).

Regression results indicate a statistically significant causal effect of walking with a dog: +0.8 more verbal interactions per walk, or a 41% increase. Non-verbal interactions and duration per encounter showed positive but statistically non-significant results across all methods.

4.2 Subgroup Effects by Personality

Participants who identified as mix or ambiverted experienced the most substantial impact from walking with a dog. On average, they had 2.68 more verbal interactions when walking with a dog compared to not walking with one. This equates to a 75% increase in the number of verbal interactions and a 79% increase in total duration of these conversations. However, their average duration per verbal interaction actually decreased by 23.5%, indicating that their dog-facilitated interactions tended to be more frequent but shorter in length.

In contrast, introverted participants saw a modest increase of 0.40 verbal interactions when walking with a dog, although this result was not statistically significant. Despite the modest increase in frequency, they experienced a 35.5% increase in the average duration of verbal interactions. This suggests that introverts may derive more value from the quality of interaction rather than quantity. Interestingly, introverts also exhibited a 23% decrease in non-verbal interactions, potentially reflecting a shift toward deeper, more engaging conversations when accompanied by a dog.

Introverted participants experienced a modest increase of 0.40 verbal interactions when walking with a dog, although this result was not statistically significant. Despite the limited increase in frequency, these participants demonstrated a meaningful 35.5% rise in the duration of each verbal interaction, suggesting deeper and more extended conversations.

Additionally, a notable decrease of 23% in non-verbal interactions was observed among introverts. This shift may indicate a preference or tendency for introverted individuals to engage more meaningfully in verbal conversations when accompanied by a dog, perhaps at the expense of brief, non-verbal acknowledgments.

4.3 Contextual Differences by Location

The location in which a walk takes place plays a significant role in the nature and frequency of social interactions. Parks were found to generate the strongest positive social effects for both ambiverts and introverts. The open, recreational environment of parks likely encourages more relaxed, approachable interactions among strangers.

Neighborhood settings proved especially effective for ambiverts, who benefited from frequent, albeit briefer, interactions. However, for introverts, these same environments appeared to have a slightly negative effect on social engagement. This may be due to the more routine or transactional nature of neighborhood encounters.

Interestingly, grocery stores demonstrated a unique dynamic for introverted individuals. While these participants reported fewer social interactions overall in this setting, the conversations that did occur were significantly longer in duration. This suggests that structured, goal-oriented environments like stores might offer fewer opportunities for casual interaction, but those that do occur tend to be more focused and sustained for introverted participants.

- Grocery Stores: Fewer interactions but much longer durations for introverts.

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5. Discussion

These results confirm the hypothesis that dogs act as social enablers, but their function differs by personality. For ambiverts, dogs are social catalysts: increasing the number of short

interactions. For introverts, dogs act more as social lubricants: extending the depth of interactions that do occur.

The regression model consistently yielded the most robust estimates, whereas propensity score matching showed reduced effects. This divergence emphasizes the importance of method triangulation in observational causal research.

In broader terms, these results help illuminate the social dynamics of everyday public behavior. While extroverts might naturally draw more interactions, dogs provide a bridge for individuals who may not typically initiate contact. This has implications for fostering inclusive public environments.

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6. Limitations

One limitation of the study is the sample size. Although 99 walking sessions were observed, subgroup analyses—such as evaluating introverts within specific locations—lacked the statistical power necessary to detect smaller or more nuanced effects. As a result, certain trends might remain underrepresented or statistically inconclusive.

Another limitation involves the accuracy of personality classification. Since personality was self-reported, there is a risk of imprecision or bias in how individuals identified as introverted or ambiverted. This subjectivity could affect the validity of subgroup comparisons.

Additionally, the study's non-randomized design poses potential threats to internal validity. Even with regression adjustment and propensity score matching, unobserved confounding variables may have influenced both the likelihood of walking with a dog and the nature of social interactions.

Temporal factors such as time of day and the purpose of the walk (e.g., leisure vs. errands) were not comprehensively tracked. These contextual elements could have a substantial influence on interaction patterns but were not fully accounted for in the analysis.

Lastly, observational bias must be considered. The presence of observers might have altered participants' natural behavior, either by making them more self-conscious or by influencing their willingness to engage socially. This potential for reactivity limits the ecological validity of the findings.

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7. Implications

Urban design strategies can benefit from encouraging dog-friendly public spaces to enhance social connectedness. When neighborhoods, parks, and city centers are accessible and welcoming to dog walkers, they create more opportunities for spontaneous social engagement. This is particularly beneficial in communities where individuals may feel socially isolated or hesitant to initiate interaction.

From a public health perspective, dog walking could be promoted as a low-cost, scalable intervention to reduce loneliness, especially among ambiverts who are predisposed to engage with others under the right conditions. The act of walking a dog provides not just physical exercise but also social exposure, potentially improving both mental and emotional well-being.

In addition, interventions can be personalized based on personality types. For example, introverts may benefit more from strategies that enhance the depth and quality of interactions, such as structured social activities with fewer people or longer engagements. Ambiverts, in contrast, may thrive in settings that facilitate frequent, shorter interactions, aligning with their natural social tendencies.

Finally, community programs could incorporate therapy dogs or dog-assisted activities to support social engagement in various environments such as schools, elderly care facilities, and transitional housing. These programs can be tailored to enhance interaction, build empathy, and foster inclusive environments where people feel more connected through shared experiences with animals. Programs integrating therapy dogs or dog-assisted activities could support social engagement in schools, elderly care, and transitional housing.

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8. Conclusion

This study provides compelling causal evidence that walking with a dog increases social interaction, especially for ambiverts. While introverts do not experience the same quantity of interactions, they benefit in terms of quality and depth. These findings highlight the potential for dogs to serve as tailored social facilitators and demonstrate how observational data, when paired with strong statistical tools, can generate actionable insights for both behavioral science and policy design.

Future research should explore randomized controlled trials, larger and more diverse samples, and incorporate mobile app tracking or wearable sensors to enhance accuracy in behavioral data collection. Longitudinal studies may further reveal whether the social benefits of dog walking translate into long-term community cohesion and personal well-being.

References

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