



# Supplementary Materials: Expectations versus Reality: Long-Term Research on the Dog–Owner Relationship

Esther M.C. Bouma \*, Lonneke M. Vink † and Arie Dijkstra

Department of Social Psychology, Faculty of Behavioural and Social Sciences, University of Groningen, 9712 CP Groningen, the Netherlands; arie.dijkstra@rug.nl

\* Correspondence: e.m.c.bouma@rug.nl

† Deceased.

Table S1. Advantages of dogs and dog ownership.

| What Advantages Do You see in Dogs/Dog Ownership?    |
|--|
| 1. Having company                                    |
| 2. Feeling more confident about myself               |
| 3. Feeling more safe                                 |
| 4. Having a companion                                |
| 5. Feeling more connected with nature                |
| 6. Feeling less lonely                               |
| 7. Being outside more often to clear my head         |
| 8. Getting more exercise                             |
| 9. Having less stress                                |
| 10. Being more physically fit                        |
| 11. Getting sick less often                          |
| 12. Having someone to talk to                        |
| 13. Being taken more seriously by other people       |
| 14. Having more structure in my life                 |
| 15. Have someone to play with                        |
| 16. Having more social contact with other people     |
| 17. Have a better mood                               |
| 18. Experiencing more liveliness around the house    |
| 19. Feeling less depressed                           |
| 20. Have someone who is there for me unconditionally |
| 21. Feeling more complete                            |
| 22. Having my house guarded                          |
| 23. Having fewer physical complaints                 |
| 24. Feeling more happy                               |
| 25. Feeling more valued by other people              |

**Table S2.** Disadvantages of dogs and dog ownership.

- 
1. Because of my dog... I have less freedom to go away spontaneously
  2. I have to get out of the house multiple times a day, despite the weather
  3. I have an extra and significant responsibility in my life
  4. I have to spend much time on my dog's care
  5. I have to spend more money
  6. I have to clean my house more often
  7. I have to get up early to walk my dog
  8. I have to clean dog feces
  9. I have to plan my life more
  10. I have a house that smells less nice
- 

**Table S3.** Overview of canine behavioral problems.

- 
1. Not responding to stop commands
  2. Bad eating manners
  3. Not listening when called upon
  4. Pulling the leash
  5. Inappropriate soiling
  6. Inappropriate soft/playful biting
  7. General disobedience
  8. Aggression toward other dogs
  9. Aggression toward unfamiliar people
  10. Aggression toward familiar people
  11. Inappropriate digging
  12. Destructive behavior
  13. Inappropriate chewing or biting inedible objects
  14. Hyperactivity
  15. Inappropriate barking
  16. Jumping onto people
-

Table S4. Descriptive elements by group and time point.

| Group                    |       | Overall (n=183) |       | First (n = 30) |       | Previous (n = 73) |       | Current (n = 80) |      |
|--------------------------|-------|-----------------|-------|----------------|-------|-------------------|-------|------------------|------|
| Variable                 | Range | Mean            | SD    | Mean           | SD    | Mean              | SD    | Mean             | SD   |
| Self-efficacy T0         | 1–10  | 8.9             | 10.03 | 8.27           | 13.05 | 8.82              | 0.95  | 9.26             | 0.79 |
| Self-efficacy T1         | 1–10  | 8.9             | 0.93  | 8.98           | 0.90  | 8.73              | 10.04 | 9.12             | 0.85 |
| Self-efficacy T2         | 1–10  | 8.92            | 0.97  | 8.83           | 0.93  | 8.80              | 10.57 | 9.05             | 0.88 |
| Advantages T0            | 1–25  | 3.43            | 0.55  | 3.04           | 0.55  | 3.44              | 0.59  | 3.56             | 0.54 |
| Advantages T1            | 1–25  | 3.55            | 0.51  | 3.43           | 0.54  | 3.57              | 0.47  | 3.57             | 0.53 |
| Advantages T2            | 1–25  | 3.70            | 0.51  | 3.55           | 0.41  | 3.70              | 0.53  | 3.75             | 0.47 |
| Disadvantages T0         | 1–10  | 3.58            | 0.5   | 3.74           | 0.59  | 3.64              | 0.49  | 3.46             | 0.51 |
| Disadvantages T1         | 1–10  | 3.44            | 0.58  | 3.55           | 0.48  | 3.48              | 0.51  | 3.36             | 0.63 |
| Disadvantages T2         | 1–10  | 3.45            | 0.53  | 3.51           | 0.72  | 3.48              | 0.51  | 3.40             | 0.57 |
| Social comparison T0     | 1–7   | 6.03            | 0.72  | 5.74           | 0.72  | 5.99              | 0.68  | 6.19             | 0.71 |
| Social comparison T1     | 1–7   | 5.82            | 0.69  | 5.87           | 0.86  | 5.78              | 0.68  | 5.83             | 0.70 |
| Social comparison T2     | 1–7   | 5.79            | 0.72  | 5.86           | 0.33  | 5.76              | 0.69  | 5.80             | 0.70 |
| Commitment T0            | 1–5   | 4.67            | 0.32  | 4.52           | 0.32  | 4.66              | 0.34  | 4.74             | 0.29 |
| Commitment T1            | 1–5   | 4.75            | 0.29  | 4.70           | 0.30  | 4.75              | 0.27  | 4.76             | 0.29 |
| Commitment T2            | 1–5   | 4.79            | 0.32  | 4.77           | 0.26  | 4.78              | 0.28  | 4.80             | 0.36 |
| Problematic behaviors T1 | 1–16  | 1.73            | 0.34  | 1.66           | 0.23  | 1.73              | 0.35  | 1.72             | 0.37 |
| Problematic behaviors T2 | 1–16  | 1.66            | 0.30  | 1.65           | 0.26  | 1.66              | 0.27  | 1.68             | 0.34 |
| Satisfaction T1          | 1–7   | 6.11            | 0.98  | 1.89           | 0.53  | 1.77              | 0.57  | 1.68             | 0.54 |
| Satisfaction T2          | 1–7   | 6.14            | 0.80  | 1.91           | 0.50  | 1.73              | 0.57  | 1.75             | 0.54 |
| Perceived costs T1       | 1–5   | 1.75            | 0.55  | 6.15           | 0.75  | 6.16              | 0.98  | 6.04             | 1.06 |
| Perceived costs T2       | 1–5   | 1.77            | 0.56  | 6.15           | 0.66  | 6.13              | 0.83  | 6.14             | 0.85 |

**Table S5.** Differences between the ownership groups for all variables by time point.

| <b>Variable</b>         | <b>F-value</b> | <b>df</b> | <b>p-value</b> | <b>Sig. Difference</b>     |
|-------------------------|----------------|-----------|----------------|----------------------------|
| Self-efficacy T0        | 11.08          | 2,183     | $p < 0.001$    | first < previous < current |
| Self-efficacy T1        | 2.07           | 2,183     | 0.129          |                            |
| Self-efficacy T2        | 1.39           | 2,183     | 0.250          |                            |
| Advantages T0           | 10.47          | 2,183     | $p < 0.001$    | first < previous < current |
| Advantages T1           | 1.01           | 2,183     | 0.367          |                            |
| Advantages T2           | 1.60           | 2,183     | 0.205          |                            |
| Disadvantages T0        | 4.47           | 2,183     | 0.013          | first > current            |
| Disadvantages T1        | 1.47           | 2,183     | 0.234          |                            |
| Disadvantages T2        | 0.71           | 2,183     | 0.496          |                            |
| Social comparison T0    | 4.71           | 2,183     | 0.010          | first < current            |
| Social comparison T1    | 0.24           | 2,183     | 0.782          |                            |
| Social comparison T2    | 0.20           | 2,183     | 0.821          |                            |
| Commitment T0           | 5.51           | 2,183     | 0.005          | first < current            |
| Commitment T1           | 0.60           | 2,183     | 0.550          |                            |
| Commitment T2           | 0.15           | 2,183     | 0.859          |                            |
| Problematic behavior T1 | 0.74           | 2,183     | 0.480          |                            |
| Problematic behavior T2 | 0.02           | 2,183     | 0.985          |                            |
| Satisfaction T1         | 0.12           | 2,183     | 0.988          |                            |
| Satisfaction T2         | 0.32           | 2,183     | 0.726          |                            |
| Perceived costs T1      | 1.68           | 2,183     | 0.190          |                            |
| Perceived costs T2      | 1.14           | 2,183     | 0.324          |                            |

**Table S6.** Rise and fall between time points for all variables by dog ownership group.

| Variable             | First ( <i>n</i> = 30) |      |                 | Previous ( <i>n</i> = 73) |      |                 | Current ( <i>n</i> = 80) |      |                 |
|----------------------|------------------------|------|-----------------|---------------------------|------|-----------------|--------------------------|------|-----------------|
|                      | t-value                | df   | <i>p</i> -value | t-value                   | df   | <i>p</i> -value | t-value                  | df   | <i>p</i> -value |
| <b>T0 to T1</b>      |                        |      |                 |                           |      |                 |                          |      |                 |
| Self-efficacy        | -3.25                  | 1,29 | 0.003           | 0.77                      | 1,72 | 0.442           | 1.81                     | 1,79 | 0.075           |
| Advantages           | -3.55                  | 1,29 | 0.001           | -2.77                     | 1,72 | 0.007           | -0.23                    | 1,79 | 0.821           |
| Disadvantages        | 1.71                   | 1,29 | 0.098           | 2.77                      | 1,72 | 0.007           | 1.81                     | 1,79 | 0.075           |
| Social comparison    | -1.08                  | 1,29 | 0.289           | 2.47                      | 1,72 | 0.016           | 4.65                     | 1,79 | < 0.001         |
| Commitment           | -2.06                  | 1,29 | 0.048           | -2.19                     | 1,72 | 0.032           | -0.74                    | 1,79 | 0.464           |
| <b>T1 to T2</b>      |                        |      |                 |                           |      |                 |                          |      |                 |
| Self-efficacy        | 1.01                   | 1,29 | 0.320           | -0.64                     | 1,72 | 0.520           | -0.33                    | 1,79 | 0.740           |
| Advantages           | -1.90                  | 1,29 | 0.067           | -3.27                     | 1,72 | 0.002           | -4.32                    | 1,79 | < 0.001         |
| Disadvantages        | -0.38                  | 1,29 | 0.710           | -0.04                     | 1,72 | 0.967           | -0.69                    | 1,79 | 0.494           |
| Social comparison    | 0.10                   | 1,29 | 0.925           | 0.16                      | 1,72 | 0.871           | 0.54                     | 1,79 | 0.592           |
| Commitment           | -1.70                  | 1,29 | 0.100           | 0.10                      | 1,72 | 0.290           | -1.25                    | 1,79 | 0.217           |
| Problematic behavior | 0.23                   | 1,29 | 0.818           | 1.96                      | 1,72 | 0.054           | 2.98                     | 1,79 | 0.004           |
| Perceived costs      | -0.23                  | 1,29 | 0.822           | 0.79                      | 1,72 | 0.430           | -1.13                    | 1,79 | 0.264           |
| Satisfaction         | 0.00                   | 1,29 | 1.000           | -0.34                     | 1,72 | 0.737           | 0.86                     | 1,79 | 0.390           |

### Detailed Information on Significant Effects of Covariates

GLM analyses revealed effects of the following covariates: educational level, age of the dog (pup or adult) and of participants' age. No effects of gender were present.

With regard to **educational level**, *self-efficacy* patterns were significantly ( $F(2,181)=3.09$ ,  $p=0.047$ ) different between owners with a low/intermediate ( $n=75$ ) and owners with a high educational level ( $n=108$ ). At all three time points, people with a high educational level had significantly more self-efficacy (M(SD) T0= 8.79 (10.57), T1 = 8.9.4 (0.93), T2 = 8.97 (0.96)) compared to people with a low/intermediate education level (M(SD) T0= 9.05 (0.90), T1 = 8.83 (0.94), T2 = 8.83 (0.97). People with a low/intermediate education start high at T0 and decline over time in their self-efficacy levels while this is the other way around for people with a high educational level. However, at none of the time points the level of self-efficacy is significantly different between the two education groups (T0:  $F(1,182) = 3.16$ ,  $p =$

0.077; T1:  $F(1,182) = 0.58, p = 0.448$ ; T2:  $F(1,182) = 0.914, p = 0.340$ ). Moreover, dog owners with a high education ( $n=108$ :  $M(SD)$  T0 = 3.32 (0.56), T1 = 3.46 (0.49), T2 = 3.63 (0.53), report regardless of time, significantly lower levels of *perceived advantages* ( $F(1,182) = 8.16, p = 0.005$ ) than dog owners with a (low/intermediate education ( $n = 75$ :  $M(SD)$  T0 = 3.59 (0.50), T1 = 3.66 (0.50), T2 = 3.79 (0.47). Group analyses revealed significant differences at all three point in time for perceived advantages (T0:  $F(1,182) = 11.27, p = 0.001$ ; T1:  $F(1,182) = 7.11, p = 0.008$ ; T2:  $F(1,182) = 4.30, p = 0.040$ ).

Participants who acquired a **puppy** ( $n=139$ ) have overall significantly ( $F(1,182) = 12.64, p < 0.001$ ) higher levels of *self-efficacy* ( $M(SD)$  T0= 8.99 (0.99), T1 = 90.36 (0.85), T2 = 90.40 (0.90) compared to people who acquired an adult dog ( $n = 44, M(SD)$  T0= 8.61 (0.99), T1 = 8.45 (10.39), T2 = 85.23 (10.67). At all three time points levels are significantly higher (T0:  $F(1,182) = 4.69, p = 0.032$ ; T1:  $F(1,182) = 13.99, p < 0.001$ ; T2:  $F(1,182) = 10.34, p = 0.002$ ). Participants who acquired a puppy ( $n=139$ ) also had overall significantly ( $F(1,182) = 9.88, p = 0.002$ ) higher levels of *social comparison* ( $M(SD)$  T0 = 6.12 (0.67), T1 = 5.91 (0.68), T2 = 58.8 (0.65) compared to people who acquired an adult dog ( $n=44, M(SD)$  T0 = 5.81 (0.84), T1 = 5.54 (0.67), T2 = 5.52 (0.87). At all three time points levels are significantly higher (T0:  $F(1,182) = 5.93, p = 0.016$ ; T1:  $F(1,182) = 9.87, p = 0.002$ ; T2:  $F(1,182) = 8.75, p = 0.004$ ). And finally, participants who acquired a puppy ( $n=139$ ) had overall significantly ( $F(1,182) = 4.68, p = 0.032$ ) higher levels of *pet satisfaction* ( $M(SD)$  T1 = 6.21 (0.73), T2 = 6.17 (0.93)) compared to people who acquired an adult dog ( $n=44, M(SD)$  T1 = 5.93 (10.05), T2 = 5.90 (10.99). This difference was only significant at T1 ( $F(1,182) = 4.05, p = 0.046$ ) but not at T2 ( $F(1,182) = 2.66, p = 0.105$ ).

**Age** had an overall effect on perception of *advantages* ( $F(1,182) = 5.38, p = 0.022$ ) and perception of *disadvantages* ( $F(1,182) = 4.32, p = 0.006$ ). With increasing age, participants perceive more disadvantages and less advantages of dog ownership. When we compare four age groups (18-30, 31-45, 46-60 and 60 years or older) no significant difference between the groups were present, not for advantages (T0:  $F(3,180) = 1.64, p = 0.182$ , T1:  $F(3,180) = 2.13, p = 0.10$ , T2:  $F(3,180) = 1.30, p = 0.78$ ) and neither for disadvantages (T0:  $F(3,180) = 1.60, p = 0.192$ , T1:  $F(3,180) = 1.37, p = 0.255$ , T2:  $F(3,180) = 1.67, p = 0.175$ ).