

# Sometimes a Bear is Just a Bear: No Evidence of Nonclinical Adult Toy Animal Ownership Indicating Emotion Dysregulation

Stuart Brody · Rui Miguel Costa · Ursula Hess

© Springer Science+Business Media, LLC 2012

**Abstract** Although some studies of clinical populations suggest an association of adult toy animal ownership with personality disorder, studies of nonclinical populations have been lacking. In a nonclinical young adult sample ( $N = 148$ ), we found no association of toy animal ownership with use of immature, mature, or neurotic defense mechanisms; avoidant or anxious attachment style; trait conscientiousness; heart rate variability (an index of self-regulatory strength); or social desirability responding. The results do not provide evidence for an association of adult nonclinical toy animal ownership with psychological or psychophysiological indices of immaturity, conscientiousness, insecure attachment, or lack of self-regulatory strength.

**Keywords** Toy animals · Attachment · Conscientiousness · Heart rate variability · Defense mechanisms

*“When I was a child, I spake as a child, I understood as a child, I thought as a child: but when I became a man, I put away childish things.”—1 Corinthians 13:11.*

## Introduction

Are—as the quote above might suggest—adults who own toy animals indeed childish? Are they emotionally stunted, or do

they perhaps simply embrace some pleasant aspects of childhood (or some other nonpathological feature of the toy animals, perhaps akin to other decorative objects)? A recent large survey conducted by a hotel chain in Britain found that over half of British adults owned a teddy bear from their childhood and that 35 % of those surveyed admitted sleeping with their bears (Travelodge UK 2010).

In keeping with the pathological view that many might take from the biblical epigraph, previous research with clinical populations has associated adult toy animal ownership with personality disorder, especially borderline personality disorder (Burneo et al. 2003; Labbate and Benedek 1996; Mack and Viederman 2000). However, the predictive value of a marker among clinical groups does not necessarily have evidentiary value in the general population. In addition, beyond categories of psychiatric diagnosis, there might be broader psychological and psychophysiological (given that there is some colocalization of autonomic regulation and executive self-regulation in the brain; (Segerstrom and Nes 2007)) aspects of any possible emotional or self-regulatory deficit that merit examination. Heart rate variability (HRV) has been shown to be a physiological measure of self-regulation at psychological and physiological levels (Reynard et al. 2011). Specifically, the central autonomous network is an integrated component of an internal regulation system through which the brain controls visceromotor, neuroendocrine, and behavioral responses that are critical for goal-directed behavior, adaptability, and health. As HRV reflects the moment-to-moment output of the central autonomous system, it provides a proxy for an individual’s capacity to generate regulated physiological responses (Tassinari et al. 2012; Thayer and Siegle 2002). Consequently, higher levels of HRV have been shown to be positively associated with good psychological and physiological (Ruiz-Padial et al. 2003) functioning.

---

S. Brody (✉) · R. M. Costa  
School of Social Sciences, University of the West of Scotland,  
Paisley PA1 2BE, UK  
e-mail: stuartbrody@hotmail.com

U. Hess  
Department of Psychology, Humboldt University Berlin, Berlin,  
Germany

Psychological indicators of emotional regulation that are associated with mental and physical health include attachment security (Mickelson et al. 1997), trait conscientiousness (Martin et al. 2007), and the adaptive use of defense mechanisms (Bond 2004).

Thus, we sought to examine in an adult nonclinical sample whether adult toy animal ownership is associated with measures of impaired emotional development (operationalized as degree of use of immature or neurotic defense mechanisms), insecure attachment (avoidant or anxious), low conscientiousness, or low heart rate variability.

## Method

### Participants

Students ( $N = 148$ , 71 women; mean age = 25.6,  $SD = 6.9$ ; 51.7 % born in Scotland, 4.1 % other UK, 28.6 % other Europe, 15.6 % rest of world) were recruited at the University of the West of Scotland as part of a broader psychophysiological study (not reported here). The study was approved by the School Ethics committee, and the participants were aware that they had the right to discontinue participation at any time and that their responses were confidential.

### Statistical Power Considerations

With the sample size of 148 and a two-tailed alpha of .05, there is a power of over 0.80 to detect a correlation of 0.24 (small to medium effect size) (Faul et al. 2009).

### Procedure

After providing informed consent, participants rested for 5 min in a chair. Measurement of heart rate variability (see below) was then performed, followed by completion of the questionnaires.

### Measures

#### *Adult Toy Animal Ownership and Demographics*

Our questionnaire included items asking participants their age, sex, country of birth, and whether they currently owned a toy animal with the question “Do you have any of the following soft toys (also called ‘stuffed animals’): bear, lamb, cat, dog, other animal.” The respondents were further asked to indicate whether they had owned the toy animals from childhood, from between 10–16 years, or acquired them more recently.

#### *Defense Mechanisms*

The Defense Style Questionnaire 40 (DSQ-40) (Andrews et al. 1993) measures the conscious derivatives of 20 defense mechanisms that load into the three factors (in a developmental hierarchy) of mature, neurotic, and immature defenses. The immature defenses scale (consisting of the defenses: rationalization, projection, passive-aggression, acting out, isolation of affect, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, somatization) is able to differentiate between healthy and psychopathological groups (Bond 2004), and component immature defenses can also differentiate between patient groups (Blaya et al. 2006). In Portuguese, French-Canadian, and Scottish samples, scores on the immature defenses scale of the DSQ-40 have been found to be associated with impairment of specifically women’s orgasm triggered by penile–vaginal intercourse per se (vaginal orgasm) (Brody and Costa 2008; Brody et al. 2010; Costa and Brody 2010, 2011). The immature defenses scale of the DSQ-40 is also associated with misperception of lethal risk (Brody and Costa 2009) and with elevated risk of self-harm (Brody and Carson 2012).

#### *Attachment Style*

The Experience in Close Relationships—Revised (ECR-R) scale (Fraley et al. 2000) was used to measure insecure (avoidant and anxious) attachment styles. Questions were presented in the same sequence for all participants.

#### *Conscientiousness*

Conscientiousness is an important long-term determinant of adjustment (Soldz and Vaillant 1999). We measured it with the brief mini-markers scale (Saucier 1994), which consists of six self-referential adjectives with which participants rate their degree of agreement on a scale from 1 (extremely inaccurate) to 9 (extremely accurate). Coefficient alpha was reported as 0.90 (Saucier 1994).

#### *Social Desirability*

To assess social desirability responding, a brief (13-item) social desirability response bias scale was administered (Ballard 1992). Among sources of validation, the scale score was shown to increase under mock job selection conditions in a Chinese sample (Tao et al. 2009).

#### *Heart rate Variability*

Resting heart rate variability is not only a measure of autonomic function and tone and an index of cardiovascular health, but also an index of self-regulatory strength and

**Table 1** T-tests comparing those having a soft toy with those not having a soft toy regarding age, heart rate variability parameters, defensive levels, attachment styles, conscientiousness, and social desirability

	Not having a toy M (SD)	Having a toy M (SD)	<i>t</i>	<i>p</i>
Age (years)	26.84 (7.36)	24.64 (6.39)	1.94	.055
Standard deviation of heart rate (bpm)	5.03 (1.67)	5.15 (1.99)	.36	.72
Standard deviation of interbeat intervals (secs)	.06 (.03)	.05 (.03)	1.36	.18
High-frequency power (ms <sup>2</sup> )	386.97 (558.78)	291.72 (358.78)	1.24	.22
Low-frequency power (ms <sup>2</sup> )	636.69 (836.78)	517.67 (622.28)	.98	.33
Immature defenses	4.39 (.98)	4.20 (.84)	1.24	.22
Neurotic defenses	4.99 (1.12)	4.88 (1.08)	.63	.53
Mature defenses	5.67 (1.11)	5.50 (1.09)	.92	.36
Anxious attachment	2.65 (1.16)	2.36 (1.26)	1.40	.17
Avoidant attachment	2.18 (1.10)	1.83 (1.16)	1.84	.07
Conscientiousness	6.48 (1.29)	6.21 (1.43)	1.17	.24
Social desirability	6.44 (2.79)	6.06 (2.53)	.86	.39

effort, and thus a nonreactive measure of capacity for self-regulation (Appelhans and Luecken 2006; Reynard et al. 2011). Following a 5-min rest period seated in a comfortable chair, heart rate was measured for 5 min on a beat-to-beat basis with the polar T31 device (Polar Electro Oy, Finland; the measurement device is on an elastic band that is placed around the rib cage). R-wave data were subjected to visual inspection for removal of artifacts and ectopic beats. Both time domain (standard deviation of heart rate and interbeat interval) and frequency domain (high-frequency power and low-frequency power in ms<sup>2</sup>; fast Fourier transformed with the HRV Analysis program: <http://kubios.uku.fi>) measures of heart rate variability were used in these analyses.

## Results

Eighty-six (58.1 %) participants owned a toy animal. Thirty-four (23 %) had only toy animals from childhood/adolescence, and 52 (35.1 %) had acquired the toy animals more recently.

Fifty-six of the 71 women and 30 of the 77 men reported presently owning a toy animal (chi-square for sex difference = 24.17, *df* = 1, *p* < .001). Thirty-two women and 20 men presently owned a toy animal that had been recently acquired. Toy ownership was weakly and marginally correlated with younger age (*r* = -0.16, *p* = .055).

Adult toy ownership was unrelated to immature defenses, neurotic defenses, mature defenses, avoidant attachment, anxious attachment, conscientiousness, all four measures of resting heart rate variability, and social desirability responding (all  $|r| < .15$ , all *p* > .05; see Table 1 for descriptive statistics and *t* tests). Similarly, nonsignificant results were obtained in analyses that adjusted for age or sex. Both forward and backward stepwise logistic regression prediction models of toy ownership resulted in only sex and age being significant predictors.

ANOVA was computed to compare those who do not have toys, those whose toys were more recently acquired, and those who only had toys from childhood or adolescence. Again, there were no significant differences for the psychological adjustment variables (all *p* > .05). Persons having toys from childhood/adolescence were younger than the other two groups ( $F(2,145) = 5.12$ , *p* = .007). However, the effects on the psychological adjustment variables remained nonsignificant when age and sex were controlled.

## Discussion

The results do not provide evidence for an association of adult nonclinical toy animal ownership with psychological or psychophysiological indices of immaturity, insecure attachment, low trait conscientiousness, or lack of self-regulatory strength. Social desirability scores were not associated with toy ownership either in bivariate associations or in multivariate statistical models.

It might be that in adult nonclinical groups, rather than serving only as a “transitional object” between what is “me” and “not me” (Winnicott 1971), toy animals might not differ greatly from other consumer items that can provide a sense of psychological comfort (Young 1994). The “childish things” in the epigraph might perhaps be more usefully understood as immature psychological development and associated behavioral processes (including reliance on immature defense mechanisms), rather than owning a toy associated with childhood, which might in many cases be less a sign of pathology and more an indicator of playfulness and perhaps acceptance of a younger self. The present findings suggest that what might be a diagnostic marker within clinical groups might not always have similar implications in a nonclinical sample.

A strength of the study is that multiple measures of emotional development were used along with a measure of

social desirability responding, as well as a psychophysiological index of self-regulatory ability. A limitation of the study is the nonrandom sample. Results are not necessarily generalizable to other cultures or age groups or cohorts. Future research should examine the age(s) at which toy animals were obtained and perhaps relinquished.

## References

- Andrews, G., Singh, M., & Bond, M. (1993). The defense style questionnaire. *Journal of Nervous and Mental Disease, 181*, 246–256.
- Appelhans, B. M., & Luecken, L. J. (2006). Heart rate variability as an index of regulated emotional responding. *Review of General Psychology, 10*, 229–240.
- Ballard, R. (1992). Short forms of the Marlowe-Crowne social desirability scale. *Psychological Reports, 71*, 1155–1160.
- Blaya, C., Dornelles, M., Blaya, R., Kipper, L., Heldt, E., Isolani, L., et al. (2006). Do defense mechanisms vary according to the psychiatric disorder? *Revista brasileira de psiquiatria, 28*, 179–183.
- Bond, M. (2004). Empirical studies of defense style: Relationships with psychopathology and change. *Harvard Review of Psychiatry, 12*, 263–278.
- Brody, S., & Carson, C. M. (2012). Brief report: Self-harm is associated with immature defense mechanisms but not substance use in a nonclinical Scottish adolescent sample. *Journal of Adolescence*. doi:10.1016/j.adolescence.2011.09.001.
- Brody, S., & Costa, R. M. (2008). Vaginal orgasm is associated with less use of immature psychological defense mechanisms. *Journal of Sexual Medicine, 5*, 1167–1176.
- Brody, S., & Costa, R. M. (2009). Overestimation of heterosexually attributed AIDS deaths is associated with immature psychological defence mechanisms and clitoral masturbation during penile-vaginal intercourse. *International Journal of STD and AIDS, 20*, 869–875.
- Brody, S., Houde, S., & Hess, U. (2010). Greater tactile sensitivity and less use of immature psychological defense mechanisms predict women's Penile-Vaginal intercourse orgasm. *Journal of Sexual Medicine, 7*, 3057–3065.
- Burneo, J. G., Martin, R., Powell, T., Greenlee, S., Knowlton, R. C., Faught, R. E., et al. (2003). Teddy bears: An observational finding in patients with non-epileptic events. *Neurology, 61*, 714–715.
- Costa, R. M., & Brody, S. (2010). Immature defense mechanisms are associated with lesser vaginal orgasm consistency and greater alcohol consumption before sex. *Journal of Sexual Medicine, 7*, 775–786.
- Costa, R. M., & Brody, S. (2011). Anxious and avoidant attachment, vibrator use, anal sex, and impaired vaginal orgasm. *Journal of Sexual Medicine, 8*(9), 2493–2500. doi:10.1111/j.1743-6109.2011.02332.x.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G\*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149–1160.
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item-response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology, 78*, 350–365.
- Labbate, L. A., & Benedek, D. M. (1996). Bedside stuffed animals and borderline personality. *Psychological Reports, 79*, 624–626.
- Mack, A. H., & Viederman, M. (2000). The use of a transitional object in the context of medical illness. *Psychosomatics, 41*, 433–435.
- Martin, L. R., Friedman, H. S., & Schwartz, J. E. (2007). Personality and mortality risk across the life span: the importance of conscientiousness as a biopsychosocial attribute. *Health Psychology, 26*, 428–436.
- Mickelson, K. D., Kessler, R. C., & Shaver, P. R. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology, 73*, 1092–1106.
- Reynard, A., Gevirtz, R., Berlow, R., Brown, M., & Boutelle, K. (2011). Heart rate variability as a marker of self-regulation. *Applied Psychophysiology and Biofeedback, 36*(3), 209–215.
- Ruiz-Padial, E., Sollers, J. J., I. I. I., Vila, J., & Thayer, J. F. (2003). The rhythm of the heart in the blink of an eye: Emotion-modulated startle magnitude covaries with heart rate variability. *Psychophysiology, 40*(2), 306–313.
- Saucier, G. (1994). Mini-Markers: A brief version of Goldberg's unipolar big five markers. *Journal of Personality Assessment, 63*, 506–516.
- Segerstrom, S. C., & Nes, L. S. (2007). Heart rate variability reflects self-regulatory strength, effort, and fatigue. *Psychological Science, 18*, 275–281.
- Soldz, S., & Vaillant, G. E. (1999). The big five personality traits and the life course: A 45-year longitudinal study. *Journal of Research in Personality, 33*, 208–232.
- Tao, P., Guoying, D., & Brody, S. (2009). Preliminary study of a Chinese language short form of the Marlowe-Crowne social desirability scale. *Psychological Reports, 105*(3 Pt 2), 1039–1046.
- Tassinari, L. G., Hess, U., & Carcoba, L. M. (2012). Peripheral physiological measures of psychological constructs. In H. Cooper (Ed.), *APA handbook of research methods in psychology, Vol. 1: Foundations, planning, measures, and psychometrics* (pp. 461–488). Washington, DC: American Psychological Association.
- Thayer, J. F., & Siegle, G. J. (2002). Neurovisceral integration in cardiac and emotional regulation. *IEEE Engineering in Medicine and Biology Magazine, 21*(4), 24–29.
- Travelodge UK. (2010). Over a third of British adults still sleep with a teddy bear Retrieved 23 Aug 2010, from [http://www.travelodge.co.uk/press\\_releases/press\\_release.php?id=393](http://www.travelodge.co.uk/press_releases/press_release.php?id=393).
- Winnicott, D. W. (1971). *Playing and reality*. London: Tavistock.
- Young, R. M. (1994). *Mental space*. London: Process Press Ltd.