Short Communication

Sex differences in romantic attachment: A facet-level analysis

Marco Del Giudice

Department of Psychology, University of New Mexico, Logan Hall, 2001 Redondo Dr. NE,Albuquerque, NM 87131, USA

ABSTRACT

Evolutionary models predict systematic sex differences in romantic avoidance and anxiety; however, observed effect sizes are typically small. Here I explore the possibility that larger and more reliable differences may emerge at the level of narrower attachment facets. In two datasets from the US and Italy, five facets could be identified in the Experiences in Close Relationships questionnaire. As predicted, attachment facets showed larger sex differences (US: $d = -.14$ to $.31$, Italy: $d = -.53$ to $.39$) than avoidance and anxiety (US: $d = .00$ and $-.03$, Italy: $d = .18$ and $-.40$); moreover, different facets of the same dimension showed opposite-sign effects. These findings suggest that sex differences in attachment can be fruitfully investigated at the level of facets.

© 2015 Elsevier Ltd. All rights reserved.

The existence of systematic sex differences in romantic attachment has been predicted based on evolutionary theory (see Del Giudice(2009); Del Giudice and Belsky(2010); Kirkpatrick(1998)). In this perspective, romantic avoidance can be partly understood as a male-biased strategy for *minimizing commitment* in long-term relationships, whereas anxiety can be interpreted as a female-biased strategy for *maximizing investment* from partners and relatives (Del Giudice, 2009). The available empirical data support evolutionary predictions: across countries, men tend to show higher avoidance and lower anxiety than women (Del Giudice, 2011; Schmitt et al., 2003). However, effect sizes are typically small, which raises questions about their biological and psychological significance.

Here I explore the possibility that broad dimensions such as avoidance and anxiety may fail to capture the true pattern of sex differences in attachment styles, and that larger and more reliable differences may emerge at the level of narrower attachment *facets* (see Del Giudice(2011)). As I show below, a facet-level analysis reveals a complex structure of sex differences within the domains of avoidance and anxiety; while some facets show differences in the usual direction, other facets display attenuated or opposite-sign associations with sex.

1. Methods and results

I reanalyzed two existing datasets of scores on the Experiences in Close Relationships questionnaire (ECR; Brennan, Clark, & Shaver, 1998). The first was an aggregate sample of US undergraduates. I started

by extracting lower-level facts of the ECR with exploratory factor analysis; next, I computed sex differences in individual facets and compared them with those in avoidance and anxiety. I then replicated the analysis in a sample of Italian undergraduates. Analyses were performed in SPSS™ Statistics 20.0 and R™ 2.15.

2. Dataset 1: US undergraduates

The dataset was obtained by aggregating three samples from Allen and Baucom (2004; $N = 504$) and Noftle and Shaver (2006; $N = 285$ and 8310). Raw data were contributed by the authors and included in a previous meta-analysis (Del Giudice, 2011). Participants were undergraduates aged 17–24. In Noftle and Shaver's sample, 239 participants (3.2%) had answered all the items with the same score, had more than 50% missing answers, or had omitted to indicate their sex; they were dropped from analysis. Missing values ranged from 0% to 1%, and were imputed via multiple regression. Total $N = 8829$ (5793 females).

2.1. Facets of romantic attachment

Item-level data were analyzed with principal axis factoring of the correlation matrix. Five factors had eigenvalues >1, while parallel analysis suggested 6–7 factors. However, solutions with more than 5 factors contained uninterpretable factors with no sizable loadings. Thus, the 5-factor solution was retained and Oblimin-rotated. Factor loadings of ECR items and correlations between factors are shown in Tables 1 and 2. A five-factor extraction with Oblimin rotation was performed separately in the male and female subsamples. The similarity

E-mail address: marcodg@unm.edu.

Table 1
Oblimin-rotated loadings of ECR items in the US dataset (pattern matrix).

ECR items (content summary)	1. SR	2. DC	3. PR	4. NE	5. RDC
Avoidance					
1. Shows feelings	.18	**.46**	.03	.03	−.08
3. Comfortable being close	.49	.32	.01	.00	−.08
5. Pulls away when close	−.05	**.81**	.06	−.02	−.03
7. Uncomfortable when close	−.03	**.80**	.00	−.02	−.01
9. Comfortable opening up	.18	**.64**	.07	.06	−.06
11. Wants to get close, keeps pulling back	.00	**.77**	.07	−.02	.06
13. Nervous when close	.03	**.82**	.00	−.01	.06
15. Comfortable sharing	**.63**	.08	−.02	.09	−.09
17. Avoids getting close	.05	**.74**	−.02	.01	.09
19. Easy to get close	.50	.23	.10	−.02	−.04
21. Difficult to depend	.07	**.50**	.04	.03	.05
23. Not too close	.12	**.68**	−.18	.00	.07
25. Tells everything	**.68**	.14	.06	−.01	−.07
27. Discusses problems	**.81**	.03	.02	.05	−.01
29. Comfortable depending	.44	.18	.09	−.13	−.04
31. Asks for comfort	**.80**	−.02	.02	.01	.06
33. Help in times of need	**.79**	−.07	−.06	−.07	.14
35. Comfort and reassurance	**.77**	−.03	−.08	−.12	.11
Anxiety					
2. Worries about abandonment	−.04	.08	**.74**	.04	−.03
4. Worries about relationships	−.10	.10	**.57**	.10	.08
6. Worries that partners won't care	−.07	.16	**.59**	.01	.19
8. Worries about losing partner	−.09	.10	**.69**	.04	.09
10. Wishes partner's feelings were as strong	−.02	.12	.41	.03	.34
12. Wants to merge completely, scares partners away	−.01	.03	.03	.00	**.78**
14. Worries about being alone	−.03	.07	**.62**	.10	.07
16. Desire to be close scares people away	−.01	.02	.01	.01	**.78**
18. Needs reassurance	−.11	.07	.36	.37	.04
20. Forces partners to show more commitment	−.01	−.01	.09	.33	.37
22. Worries about being abandoned	.19	−.19	**.64**	.00	−.03
24. Angry if partner does not show interest	.07	.06	.03	**.59**	.12
26. Partners don't want to get as close	.12	.06	.07	.10	**.63**
28. Insecure when not in a relationship	.04	.02	.24	.29	.16
30. Frustrated when partner is not around	−.02	−.10	.00	**.79**	−.03
32. Frustrated if partners are not available	−.09	.02	−.04	**.81**	−.09
34. Feels bad when partners disapprove	−.13	.06	.21	.37	.01
36. Resents it when partner is away	.08	−.01	.01	**.58**	.15

Note: SR = Self-reliance; DC = Discomfort with closeness; PR = Preoccupation; NE = Neediness; RDC = Rejected desire for closeness. Facet scores were computed with boldface items.

of factor loadings in males and females was assessed with Tucker's coefficient of congruence (*CC*; see Abdi(2007)). *CC* > .80 indicates high similarity; *CC* > .90 indicates very high similarity. Congruence ranged from *CC* = .98 to .99, i.e., solutions were virtually identical in the two sexes.

Some ECR items had nontrivial cross-loadings on two or more factors (Table 1). Since the ECR was designed to measure broad attachment dimensions, some of its items can be expected to tap multiple facets. To minimize spurious overlap between facets, only items with primary loading >.50 and secondary loadings <.20 (boldface in Table 1) were used to interpret facets and compute facet-level scores. This somewhat conservative criterion was chosen to maximize facet reliability and interpretability.

Table 2
Factor correlation matrix in the US dataset.

	1.	2.	3.	4.
1. Self-reliance	1.00			
2. Discomfort with closeness	.52	1.00		
3. Preoccupation	.05	.28	1.00	
4. Neediness	−.22	.12	.55	1.00
5. Rejected desire for closeness	.05	.26	.46	.43

2.1.1. Avoidance facet 1: self-reliance

The first avoidance facet was defined by reluctance to ask one's partner for help and comfort, share feelings, and discuss problems (items 15, 25, 27, 31, 33, 35). I labeled this facet *self-reliance*. High scores indicate reduced emotional need for one's partner, and a failure to rely on him/her as a "safe haven" in distress.

2.1.2. Avoidance facet 2: discomfort with closeness

The second avoidance facet was defined by discomfort with, and ambivalence toward, emotional closeness (5, 7, 9, 11, 13, 17, 21, 23). I labeled this facet *discomfort with closeness*. The overarching theme of this facet is a difficulty in finding the right emotional distance in relationships, often implying *ambivalence* toward closeness—a psychological theme that overlaps with both avoidance and anxiety. Indeed, this facet was also positively correlated to *anxiety* facets (Table 2).

2.1.3. Anxiety facet 1: preoccupation

The first anxiety facet was defined by persistent worry about being abandoned or neglected by one's partner (2, 4, 6, 8, 14, 22). I labeled this facet *preoccupation*.

2.1.4. Anxiety facet 2: neediness

The second anxiety facet was defined by reactions of frustration, anger, and resentment when the partner is perceived as unavailable or uninterested (24, 30, 32, 36). Accordingly, I labeled this facet *neediness*.

2.1.5. Anxiety facet 3: rejected desire for closeness

The third anxiety facet indicates unreciprocated desire for emotional closeness, which ends up scaring partners away (12, 16, 26). Items loading on this facet are unique in that they explicitly describe the *failure* of a relational strategy. This complicates the interpretation of this facet, as high scores do not simply indicate a strong desire for closeness, but rather a combination of attempts to get emotionally closer *and* rejection of those attempts by one's partners (which may be confounded by attractiveness and mate value). Accordingly, I labeled this facet *rejected desire for closeness*.

2.2. Sex differences

Sex differences in the US dataset are reported in Table 3. Effect sizes (*d*) were corrected for unreliability (d_c) as recommended by Hunter and Schmidt (2014). Positive values indicate higher scores in males. There were no detectable sex differences in avoidance, while the effect size for anxiety was very small; neither was significantly different from zero. In contrast with avoidance and anxiety, sex differences in the five attachment facets were all significantly different from zero. Males scored higher than females in self-reliance and somewhat lower than females in discomfort with closeness. Females were higher in both preoccupation and neediness, whereas males reported higher levels of rejected desire for closeness. (Higher levels of rejected desire for

Table 3
Sex differences in the US dataset.

	α	Effect sizes			
		d	95% CI	d_c	95% CI
Attachment dimensions					
Avoidance	.93	.00	[−.04, .05]	.00	[−.04, .05]
Anxiety	.92	−.03	[−.07, .02]	−.03	[−.07, .02]
Attachment facets					
Self-reliance	.89	.15	[.11, .19]	.16	[.12, .20]
Discomfort with closeness	.91	−.07	[−.12, −.03]	−.08	[−.13, −.03]
Preoccupation	.86	−.13	[−.17, −.08]	−.13	[−.18, −.09]
Neediness	.79	−.14	[−.18, −.09]	−.16	[−.20, −.10]
Rejected desire for closeness	.82	.31	[.27, .36]	.34	[.30, .40]

closeness in males may partly reflect a higher likelihood of being rejected by potential partners, e.g., because of higher female choosiness.)

3. Dataset 2: Italian undergraduates

This dataset was obtained by aggregating two samples collected at the University of Turin, Italy (N = 435 and 184). Participants were undergraduates aged 18–28. The Italian translation of the ECR was employed (Picardi, Bitetti, Puddu, & Pasquini, 2000). Missing values ranged from 0% to 0.3%, and were imputed via multiple regression. Total N = 619 (324 females).

3.1. Facets

Six factors had eigenvalues >1; parallel analysis suggested 5 factors. Again, solutions with more than 5 factors contained uninterpretable factors; the 5-factor solution was retained and Oblimin-rotated. Factor loadings and correlations between factors are shown in Tables 4 and 5. Male–female similarity of factor loadings was high, with average congruence CC = .92 (range: .86 to .97).

The five facets identified in the Italian dataset had the same content as those in the US dataset. While some items showed different loadings in the two datasets—likely due to minor differences in meaning between English and Italian items, and/or the comparatively small size of the Italian dataset—the two factorial solutions were essentially equivalent, with average congruence coefficient CC = .92 (range:

Table 4
Oblimin-rotated loadings of ECR items in the Italian dataset (pattern matrix).

ECR items	1. SR	2. DC	3. PR	4. NE	5. RDC
Avoidance					
1.	**.62**	.07	.05	−.01	−.06
3.	.02	**.55**	.00	.06	.00
5.	.03	**.70**	−.01	−.06	.05
7.	−.04	**.81**	−.03	.00	.01
9.	.50	.29	.21	−.03	−.02
11.	−.14	**.79**	−.02	.00	.11
13.	.05	**.73**	.01	.00	.00
15.	.44	.20	.00	.03	−.05
17.	.16	**.66**	.02	.00	−.01
19.	.12	**.52**	.04	.01	.12
21.	.47	.21	.02	.09	.07
23.	.23	.67	−.05	.01	−.07
25.	**.67**	.05	.00	−.02	−.03
27.	**.76**	−.05	−.09	.05	−.03
29.	**.62**	.16	−.05	.03	.06
31.	**.72**	.01	.05	.01	.02
33.	**.75**	−.09	−.08	−.09	.11
35.	**.81**	−.10	−.07	−.06	.06
Anxiety					
2.	.02	−.01	**.85**	−.09	.01
4.	−.05	−.03	.46	.08	.09
6.	.19	−.05	.39	.17	.35
8.	.02	−.06	**.79**	−.02	.01
10.	.04	−.05	.19	.36	.25
12.	.01	.05	.00	−.02	**.78**
14.	−.08	.06	**.72**	.02	.07
16.	−.09	.11	.05	.00	**.52**
18.	−.02	.01	.33	.43	.10
20.	.06	−.03	.06	.39	.39
22.	.00	−.05	**.70**	.05	.05
24.	.04	.03	−.02	**.61**	.05
26.	.14	.04	.01	.00	**.68**
28.	−.11	.10	.39	.18	.01
30.	−.01	−.08	−.03	**.84**	−.01
32.	−.12	.02	−.06	**.77**	−.04
34.	.03	.11	.16	.33	−.09
36.	.01	.00	.09	.47	.03

Note: SR = Self-reliance; DC = Discomfort with closeness; PR = Preoccupation; NE = Neediness; RDC = Rejected desire for closeness.

Table 5
Factor correlation matrix in the Italian dataset.

	1.	2.	3.	4.
1. Self-reliance	1.00			
2. Discomfort with closeness	.52	1.00		
3. Preoccupation	−.05	.19	1.00	
4. Neediness	−.07	.19	.61	1.00
5. Rejected desire for closeness	.21	.26	.38	.35

.87 to .96). Between-factor correlation matrices were also highly similar (CC = .96).

Given the high similarity between factorial structures and the larger size of the US dataset, facet scores in the Italian dataset were computed using the items selected in the US dataset. This ensured maximum comparability of effect sizes. As a robustness check, facet scores were also computed using loadings from Table 4. Scores computed with the two methods were almost perfectly correlated; the average intraclass correlation was .95 (range: .93 to 1.00). In other words, it made no practical difference whether facet scores were computed based on US or Italian loadings.

3.2. Sex differences

Sex differences in the Italian dataset are reported in Table 6. Males were higher in avoidance and lower in anxiety; both effects were significant. The larger effect sizes relative to the US dataset is consistent with previous findings on cross-cultural variation (Del Giudice, 2011). As in the US dataset, males showed higher levels of self-reliance while females were higher in preoccupation and neediness. Sex differences in discomfort with closeness were small and non-significant; males showed higher levels of rejected desire for closeness, although the effect was not significant.

4. Conclusion

As predicted, a facet-level analysis showed the existence of larger sex differences than those observed in the broader dimensions of avoidance and anxiety (Fig. 1). Even in the US dataset, where sex differences in avoidance and anxiety were negligible, reliable effects in the order of d = .15 to .30 emerged at the level of facets. Of particular interest, different facets of the same dimension sometimes showed opposite-sign effects. Within avoidance, only self-reliance was consistently higher in males, whereas discomfort with closeness was higher in women (US dataset) or showed no significant sex differences (Italian dataset). Similarly, preoccupation and neediness were consistently higher in females, whereas rejected desire for closeness was higher in males (reaching statistical significance in the US dataset). This heterogeneity at the facet level accounts for the smaller effects observed at the level of broader dimensions, mirroring a well-known pattern in the study of sex differences in personality (see Del Giudice et al., 2012). More

Table 6
Sex differences in the Italian dataset.

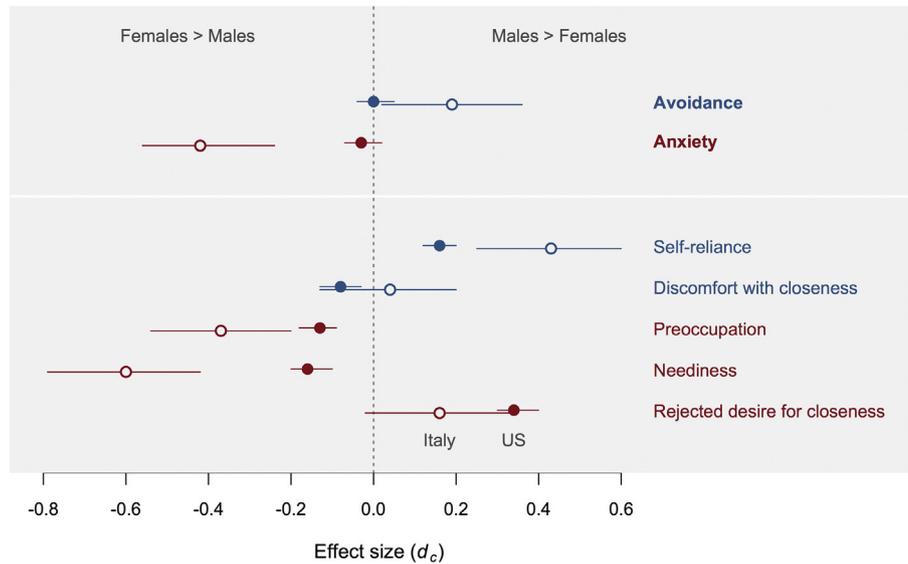|		Effect sizes			
	α	d	95% CI	d_c	95% CI
Attachment dimensions					
Avoidance	.90	.18	[.02, .34]	.19	[.02, .36]
Anxiety	.92	−.40	[−.56, −.24]	−.42	[−.58, −.25]
Attachment facets					
Self-reliance	.85	.39	[.23, .55]	.43	[.25, .60]
Discomfort with closeness	.88	.04	[−.12, .19]	.04	[−.13, .20]
Preoccupation	.85	−.34	[−.50, −.18]	−.37	[−.54, −.20]
Neediness	.76	−.53	[−.69, −.37]	−.60	[−.79, −.42]
Rejected desire for closeness	.74	.14	[−.02, .29]	.16	[−.02, .34]

Fig. 1. Corrected effect sizes (d_c) and 95% confidence intervals for sex differences in romantic attachment. Filled circles: US dataset. Open circles: Italian dataset.

research will be needed to understand the functional meaning of different attachment facets, evaluate their discriminant validity, and relate them to existing theoretical models of attachment. These initial findings suggest that sex differences in attachment can be fruitfully investigated at the level of facets.

References

Abdi, H. (2007). RV coefficient and congruence coefficient. In N. Salkind (Ed.), *Encyclopedia of measurement and statistics* (pp. 849–853). Thousand Oaks, CA: Sage.

Allen, E.S., & Baucom, D.H. (2004). Adult attachment and patterns of extradyadic involvement. *Family Process, 43*, 467–488.

Brennan, K.A., Clark, C.L., & Shaver, P.R. (1998). Self-report measures of adult attachment: An integrative overview. In J.A. Simpson, & W.S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York: Guilford.

Del Giudice, M. (2009). Sex, attachment, and the development of reproductive strategies. *Behavioral and Brain Sciences, 32*, 1–21.

Del Giudice, M. (2011). Sex differences in romantic attachment: A meta-analysis. *Personality and Social Psychology Bulletin, 37*, 193–214.

Del Giudice, M., & Belsky, J. (2010). Sex differences in attachment emerge in middle childhood: An evolutionary hypothesis. *Child Development Perspectives, 4*, 97–105.

Del Giudice, M., Booth, T., & Irwing, P. (2012). The distance between Mars and Venus: Measuring global sex differences in personality. *PLoS ONE, 7*, e29265.

Hunter, J.E., & Schmidt, F.L. (2014). *Methods of meta-analysis: Correcting error and bias in research findings* (3rd ed.). Newbury Park, CA: Sage.

Kirkpatrick, L.A. (1998). Evolution, pair bonding, and reproductive strategies: A reconceptualization of adult attachment. In J.A. Simpson, & W.S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 353–393). New York: Guilford.

Noftle, E.E., & Shaver, P.R. (2006). Attachment dimensions and the big five personality traits: Associations and comparative ability to predict relationship quality. *Journal of Research in Personality, 40*, 179–208.

Picardi, A., Bitetti, D., Puddu, P., & Pasquini, P. (2000). La scala experiences in close relationships (ECR), un nuovo strumento per la valutazione dell'attaccamento negli adulti: traduzione, adattamento e validazione della versione italiana. *Rivista di Psichiatria, 35*, 113–120.

Schmitt, D.P., Alcalay, L., Allensworth, M., Allik, J., Ault, L., Austers, I., et al. (2003). Are men universally more dismissing than women? Gender differences in romantic attachment across 62 cultural regions. *Personal Relationships, 10*, 307–331.