

Supplementary Figures and Tables

Brent et al. Family network size and survival

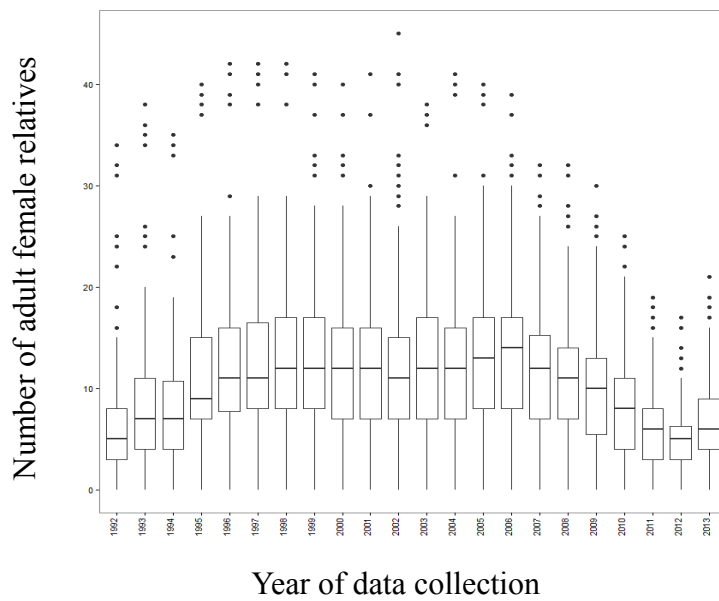
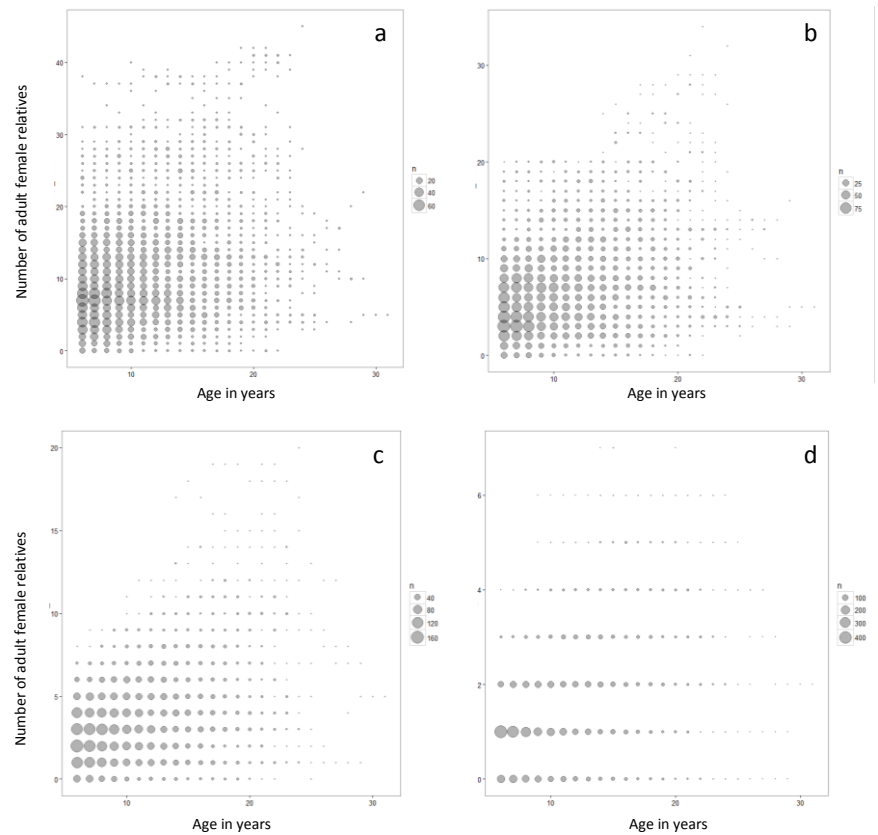


Figure S1. Number of close adult female relatives ($r \geq 0.063$) recorded per year of data collection (1992-2013). Box plots show quartiles of distributions of data with the central line indicating the 50th percentile, and with outliers (e.g. values that are greater than the 75th percentile plus 1.5 times the inter-quartile range) shown as dots.

Figure S2. Number of close adult female relatives by age in years of subjects. Plots show increasingly restrictive grades of relatedness: (a) $r \geq 0.063$, (b) $r \geq 0.125$, (c) $r \geq 0.25$, (d) $r \geq 0.5$.



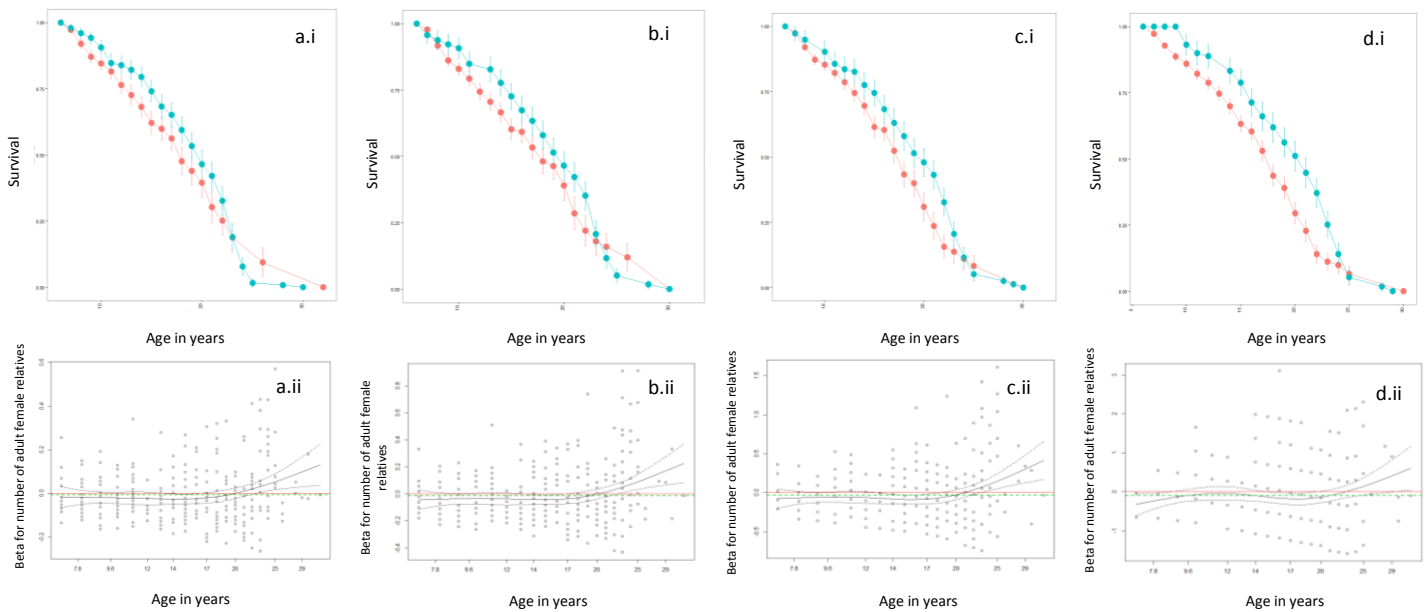


Figure S3. Relationship between number of adult female relatives and survival. Plots show increasingly restrictive grades of relatedness: (a) $r \geq 0.063$, (b) $r \geq 0.125$, (c) $r \geq 0.25$, (d) $r = 0.5$. (a.i-d.i) Relationship between survival and number of adult female relatives across female age generated using raw data, where the plots are Kaplan-Meier survival estimates with standard error bars. Blue lines are females with $\geq 75\%$ quartile number of close adult female relatives, pink lines are females with $< 25\%$ quartile number of close adult female relatives. The hazard coefficient for the impact of social support on survival (black line) was non-proportional, falling below zero (red line) in early years and above zero later in life in aii, bii and cii, apart from in d.ii ($r = 0.5$) where the hazard coefficient did not change significantly with female age and where the main effect of family size on survival was significant (main text).

Table S1. Results for models exploring the relationship between number of adult female relatives and survival.

Relatedness	Model description			
	Time-dependent covariate model Main effect for number of relatives	Proportional Hazard model significant p-value indicates a non-proportional hazard	Time-dependent coefficient model	
			Survival for females aged 6-17	Survival for females aged 18+
≥ 0.063	Coeff = -0.01 exp = 0.993 p = 0.340	Rho = 0.142 p = 0.014	Coeff = -0.023 exp = 0.977 p = 0.027	Coeff = 0.010 exp = 1.010 p = 0.308
≥ 0.125	Coeff = -0.013 Exp = 0.987 p = 0.250	Rho = 0.159 p = 0.003	Coeff = -0.0457 Exp = 0.9553 p = 0.073	Coeff = 0.015 Exp = 1.015 p = 0.305
≥ 0.25	Coeff = -0.033 Exp = 0.968 p = 0.091	Rho = 0.139 p = 0.009	Coeff = -0.093 Exp = 0.911 p = 0.003	Coeff = 0.006 Exp = 1.001 p = 0.803
$r = 0.5$	Coeff = -0.105 Exp = 0.900 p = 0.019	Rho = 0.0902 p = 0.109	Coeff = -0.140 Exp = 0.869 p = 0.026	Coeff = -0.068 Exp = -0.068 p = 0.280

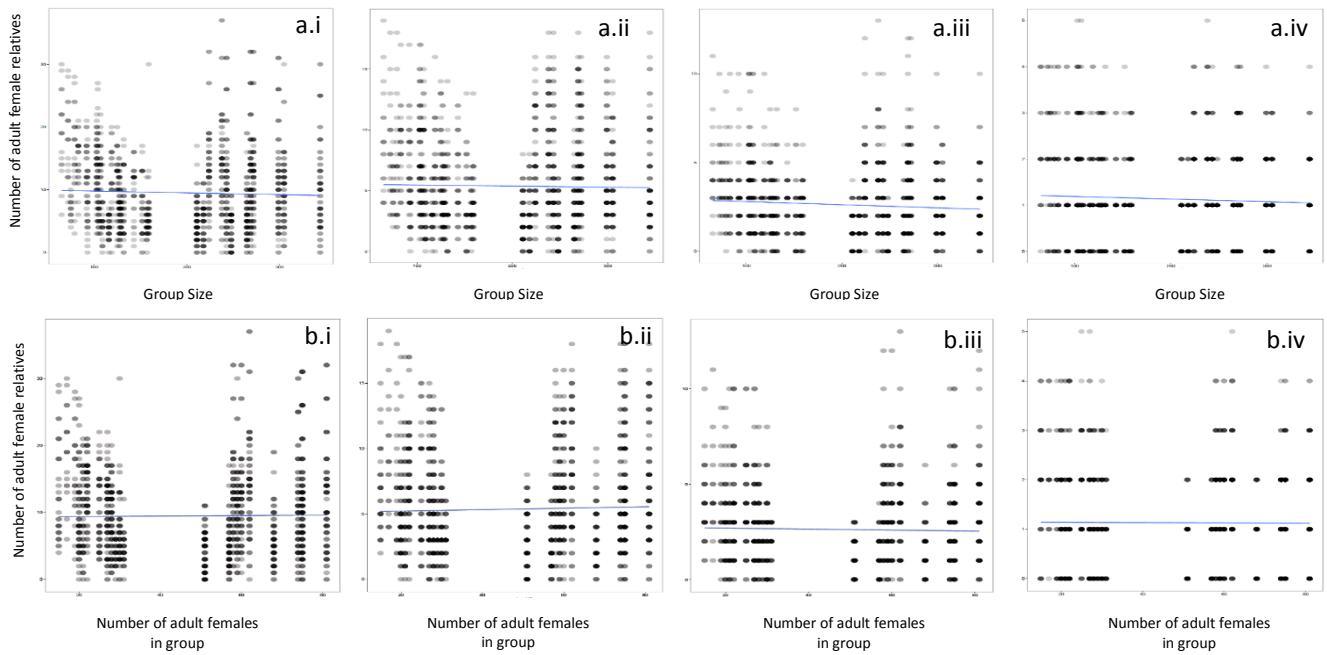


Figure S4. Relationship between social support and group size. (a) Females in larger groups do not have a greater number of close adult female relatives: (a.i) $r \geq 0.063$: estimate = 0.001, $p = 0.376$; (a.ii) $r \geq 0.125$: estimate = 0.001, $p = 0.471$; (a.iii) $r \geq 0.25$: estimate = 0.0001, $p = 0.906$; (a.iv) $r = 0.5$: estimate = 0.0001, $p = 0.246$. (b) Females in groups with a greater number of adult females do have a greater number of close adult female relatives: (b.i) $r \geq 0.063$: estimate = 0.01, $p < 0.001$; (b.ii) $r \geq 0.125$: estimate = 0.05, $p < 0.001$; (b.iii) $r \geq 0.25$: estimate = 0.022, $p < 0.001$; (b.iv) $r = 0.5$: estimate = 0.010, $p < 0.001$. Regardless, group size effects were not significant predictors of survival (main text).

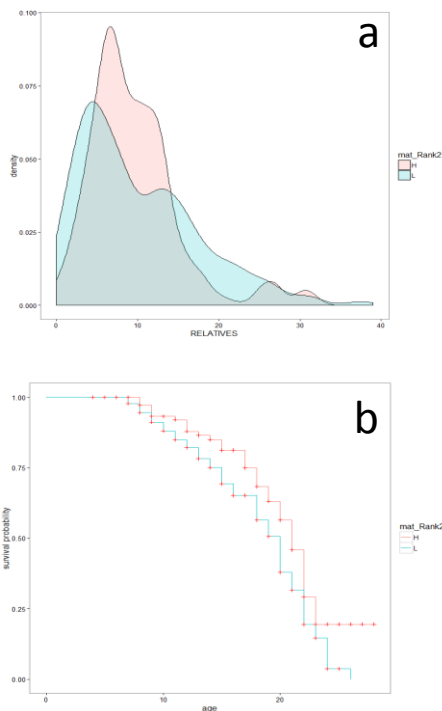


Figure S5. Relationship between survival and maternal dominance rank. (a) Females from higher ranking matriline (pink) did not have a greater number of close adult female relatives compared to females from lower ranking matriline (blue) (estimate = -0.325, $p = 0.469$). (b) Females from lower ranking matriline (blue) had a lower survival probability compared to females from higher ranking matriline (red) (coefficient = 0.445, $p = 0.043$). However, the inclusion of dominance rank did not qualitatively alter the relationship between social support and survival in prime-aged females (Table S2).

Table S2. Results of the model exploring the relationship between number of adult female relatives and survival, controlling for matrilineal dominance rank

Relatedness	Time-dependent coefficient model results, where the impact of female age is examined		
	Matrilineal rank	Survival for females aged 6-17	Survival for females aged 18+
≥ 0.063	Coeff = 0.454 Exp = 1.574 p = 0.040	Coeff = -0.074 Exp = 0.928 p < 0.001	Coeff = 0.017 Exp = 1.017 p = 0.449
≥ 0.125	Coeff = 0.354 Exp = 1.424 p = 0.110	Coeff = -0.209 Exp = 0.811 p < 0.001	Coeff = 0.015 Exp = 1.015 p = 0.690
≥ 0.25	Coeff = 0.445 Exp = 1.560 p = 0.045	Coeff = -0.425 Exp = 0.653 p < 0.001	Coeff = -0.079 Exp = 0.924 p = 0.319
r=0.5	Coeff = 0.562 Exp = 1.754 p = 0.012	Coeff = -0.544 Exp = 0.580 p = 0.0002	Coeff = -0.398 Exp = 0.671 p = 0.040

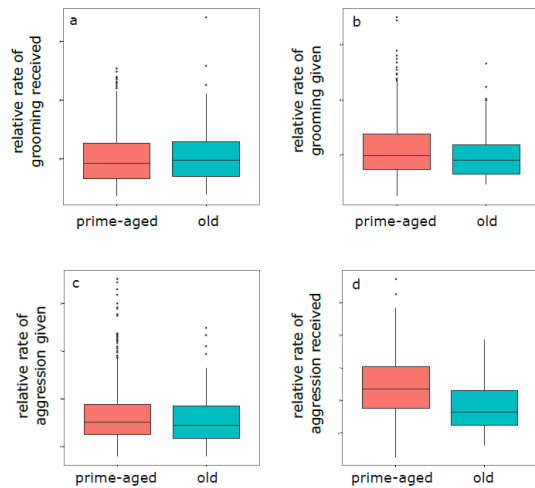


Figure S6. Changes in behaviours with categories of female age. Prime-aged and old females received (a) and gave (b) similar relative amounts of grooming, and gave similar relative amounts of aggression (c). In contrast, old adult females received significantly less aggression compared to prime-aged females (d). Statistical results are reported in the main text.