SI for Ch 21 Fathers and husbands as helpers.

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SI 21.1. Table of data for text figure 21.1.

Child age	fit dadin	fit dad alive	Fa same camp after div
0	0.9319	0.9354	
1	0.9057	0.9278	
2	0.8744	0.9193	
3	0.8385	0.9101	
4	0.7993	0.9	
5	0.7583	0.8892	0.2222
6	0.7171	0.8778	
7	0.6774	0.8657	
8	0.6402	0.8533	
9	0.6064	0.8404	
10	0.5766	0.8275	0.2088
11	0.551	0.8148	
12	0.5296	0.8023	
13	0.5123	0.7905	
14	0.4988	0.7795	
15	0.4889	0.7697	0.1883
16	0.4822	0.7612	
17	0.4784	0.7544	
18	0.4772	0.7494	
19	0.4783	0.7464	
20	0.4814	0.7456	0.1596
21	0.4861	0.7472	
22	0.4922	0.7512	
23	0.4993	0.7576	
24	0.5072	0.7665	
25	0.5154	0.7777	0.1726

SI 21.2. Table of regression analyses: weight of children aged 1-5 by father presence and reputation.

There were no effects on height, weight, triceps skinfold, or BMI. A suggestive effect on UAC (upper arm circumference) did not survive multilevel regression. Fathers had left by the time of only 54 of the measurement occasions.

Father status, reputations and child weight. The 1-5 age group. Regression model: wt = agemetry, moagebth, momwt (all significant), and one more variable listed in the table. Greater weight of under 5s was predicted by none of the measures of the child's father's presence, nor by the reputation of father or step-father.

Predictor	b	p	N of weighings
Dadin	.1021	.634	330
Stepin	-.1811	.467	330
Momalone	.0850	.808	330
Dadhunt	.000614	.937	274
Dadtrade	-.01165	.485	274
Mospshunt	-.002123	.809	282
Mospstrade	-.01325	.415	282

The same but restricted to children who have no maternal grandmother.
Father status and reputations and child weight in the children aged 1 – 5 who have no maternal grandmother. None of the father measures contribute to predicting child weight. Child weight = child age at measurement, mothers age at child's birth, mother's average weight, + predictor

predictor	b	p	N
Dadin	.2766	.416	124
Stepin	-.2066	.580	124
Momalone	-.4750	.513	124
Dadhunt	.00245	.842	114
Dadtrade	.02857	.156	114
Mospshunt	.0218	.117	116
Mospstrade	.0218	.274	116

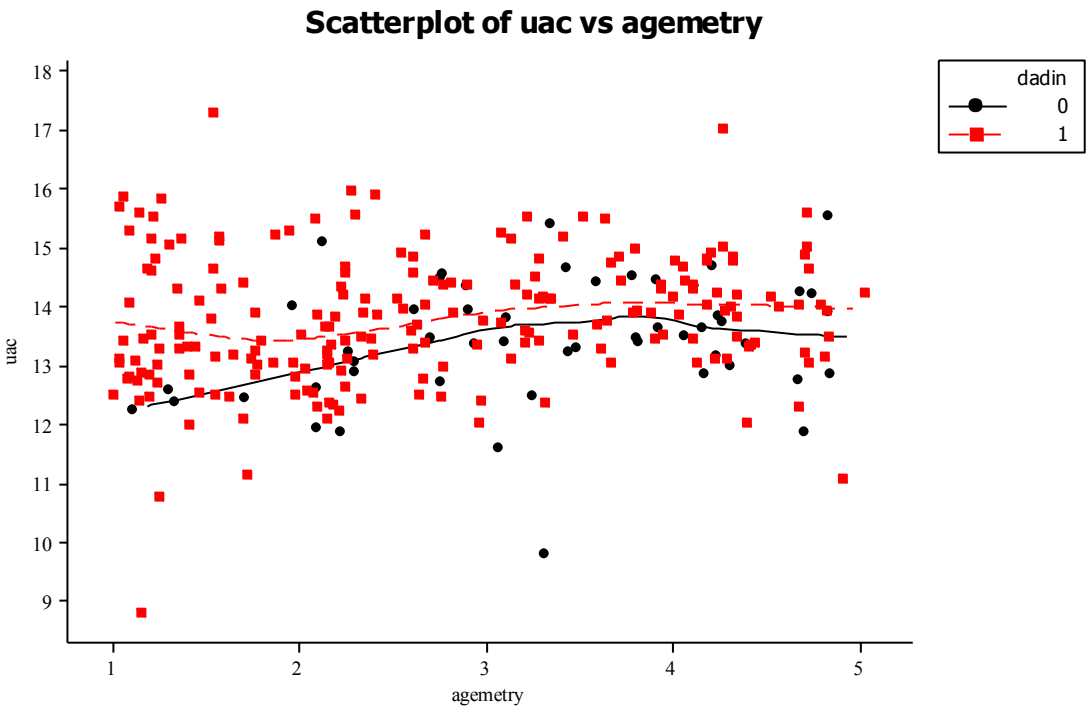
The results are similar in three level analyses (mother > child > occasion, and father > child > occasion).

UAC does show father effects in single level regression.
Sample 1-5 year old children. Hadza fathers only.
Model metry = age + moagbth + momwt all sig + indep var
Dadin remains significant after remove 4 "outliers" b .3475 p .024.
There were only 54 measurement occasions with father absent.
Removing the 7 wage earners did not remove the associations with father presence.
But the effect of dadin did not survive multilevel analysis.

Indep var	beta	p	N weighings
Dadin	.4326	.011	262
Stepin	-.5329	.005	262
Momalone	-.0299	.919	262
Dadhunt	-.002421	.721	239
Dadtrade	.00766	.579	239
Mospshunt	.00161	.831	243
mospstrade	.00077	.954	243

Poor hunters:-

Indep variable	Beta coefficient	P	N weighings
dadin	.5816	.026	147
stepin	-.7822	.007	147
Momalone	.1996	.689	147
dadtrade	.0271	.156	147
mospshunt	-.0425	.259	145
mospstrade	.01649	.389	145


Scatterplot of uac vs agemetry
dadin
0
1
uac
agemetry
18
17
16
15
14
13
12
11
10
9
1
2
3
4
5

SI 21.3. Table of regression analyses on growth of older children, aged 5-17.

Exploring father status and child weight in the 5 – 12 year old age group (age >= 5 and < 13). Sample restricted to children with Hadza fathers, and record of father marriage. "Father effect" significant but very small contribution to accounting for the variance in child weight.

Wt = age + agesqd + momagbth + nrsch (rsqd 72.2%, 499 cases)

predictor	b	p	Adj rsqd	N measurements
dadin	.8485	.002	72.6	499
dadwt	.02854	.112	72.3	443
+ dadin	.7695	.014	73.3	421
dadhunt	-.01327	.343	72.0	424
+ dadin	.7397	.014	72.3	424
Stepin	-.5193	.086	72.3	499
Thismrspan	.0367	.050	72.1	436
+ dadin	.6392	.163	72.2	436

The table above shows single level regressions of father presence (" dadin") x growth of 5-12 year olds. After control for age, age squared, mother's age at the child's birth, school attendance (school attenders grow faster), the variable "dadin" (biological father is currently married to mother) has a significant positive relationship to child weight. b .8485, p .002, adjusted r-squared 72.6%). In uni-level regression father presence was also significantly and positively related to 5 –12 year old child height (b =1.4610 p = .008), upper arm circumference (b .4044 p .001), and body mass index (b = .2176, p = .046). These are my first results suggesting a positive effect of fathers on children. Boys and girls were about equally affected.

The effect was not removed by adding grandmother status to the model. Nor is it removed by removing school attendance from the model. Dadin remains significant in a variety of models, although giving very little improvement in the adjusted r-squared. Child height and weight are correlated with father's height or weight (as we found for adult Hadza). The "dadin" result survives when mother or father height or weight are added to the regression model. Father presence has a significant effect regardless of father's reputation.

SI 21.4. Father effects on child survival when maternal grandmother is dead.

Father effects on child survival. No significant effects of father presence or reputation. Child died/lived = child age, age sqd, age cubed, "moagbth" (all significant).

	Beta	P	O.R.	OR 95%iles	Ns dead/obs
Dadin	-.4376	.211	.65	.33-1.28	76/1842
Stepin	.1409	.735	1.15	.51-2.61	69/1817
Momalone	.8043	.095	2.24	.87-5.74	76/1842
Dadstat	-1.088	.151	.34	.08-1.49	44/1359
Dadhunt	-.0056	.731	.99	.96-1.03	76/1842
Dadgenlnm	.0034	.639	1.0	.99-1.02	76/1842

SI 21.5. Description of program to compare survival with father, step-father, mother alone.

The Visual Basic program (childsurvival-08-3-12.vbp) built life tables for children that distinguished years when father was married to mother, years when mother was alone, and years when mother was married to another man. The result is a synthetic life table for each of the three conditions, which allows us to compare child survival in each condition. The program included resampling routines which give us some confidence limits for the results. With Hadza father present, child survivorship was l_{15} 0.62, with father absent l_{15} was 0.53. With stepfather present l_{15} was 0.52. Resampling showed that having the likely biological father still married to mother appears significantly safer for children than having a step – father. But neither condition is significantly different from mother living alone (l_{15} = 0.51). This analysis suggests that there may be a slight positive effect of having father in the household.

Following this observation, I re-ran the Visual Basic program on children born to mothers aged >= 25. There was no difference between father present and father absent among these children. Survival to age 15 was 0.61 for children with absent father and .63 for those with father present. Both are very close to the original father present result l_{15} = .62.

SI 21.6. Effects of grandmother status on father departure after death of a child.

Since grandmother status is also a predictor of a woman's success at keeping children alive, I added grand mother status to the regression model that predicted father's departure. There was a large and significant effect of grandmother status, but it did not

change the effect of child death on men's "departure". But for grandmother status to score "2" both parents must have lost their mother. If the woman's mother is dead the result is still large and significant (after controlling for child age, fathers departure is related to child death (b .5475 p .028 OR 1.73 (1.06-2.82) and to mother's mother's (MGM) status (b .3426 p .014 OR 1.41 (1.07-1.85). Father's are more likely to leave after a child death if there is no maternal grandmother. There is no effect of (PGM) father's mother's status.

SI 21.7. Husbands and fertility. No effect of husband reputation on wife fertility.

Because being named as father of a woman's child is one of the criteria for recording a marriage we cannot test for an effect of a man's presence in the marriage on fertility. Every birth in the annual hazard file will be associated with a man, and the woman is likely to have reported herself as married to him at the time. It was for this reason that I repeated (and confirmed) the analysis of RS and percent married in chapter 15 using census data alone.

But we can compare the probability of births to women during years when they are married to men with differing numbers of nominations as expert hunter. Women married to expert hunters are no more likely to give birth than women married to men with zero nominations, controlling for the age of the women (age + age^2). With the dependent variable "anybirth" (a birth or not, in each year of the record), controlling for age + age2 (a fair fit to fertility x age but + age3 gives the same result) beta for husband's pro-rated hunt nomantions was -.00039, p .957 OR 1.0 (.99-1.01). When the independent variable is husband's classification as > 5 nominations or fewer then beta was .02324 p .868 OR 1.02 (.78-1.35).

If we remove the control for woman's age, then wives of expert hunters do appear more fertile than others. On a scatterplot the wives of good hunters (>=5 huntpr) appear more likely to give birth in their 40s than other women but before this age show little indication of a fertility benefit from a good hunter as husband. Husbands may thus be added to the assembly of helpers found to be associated with late births and discussed in chapters 19 and 20. The inclusion of some of these successful older women in my 1997 sample of 48 women may account for the apparent mismatch between what I reported then and what I find with the current much larger sample.

There were no significant relationships between husband's reputation and length of inter-birth intervals. There was a slight tendency toward longer intervals among wives of good hunters but the relationship was far from significant.