

Electronic Supplementary Material

Snopkowski, K. and Sear, R. (2015) Grandparental help in Indonesia is directed preferentially towards needier descendants: a potential confounder when exploring grandparental influences on child health. *Social Science and Medicine* **128**:105-114

Sampling Information

A total of 7,224 households were surveyed in 1993. In each subsequent wave, the original household members who completed a detailed interview in 1993 were re-interviewed. If households split, both households were interviewed. Household members from the 1993 survey who did not complete a detailed interview were systematically added in subsequent waves. New household members were added to the survey if they became resident with someone from the original survey. This results in 7,644 mothers who were eligible to receive help (having at least 1 non-resident surviving parent or in-law) in at least one wave.

Indonesia's Economy and Social Welfare Policies

Divorce rates have varied substantially over the past 60 years in Indonesia. They were quite high in the 1950s, where 1.5% of people aged 15 or older divorced each year, but fell to 0.1% by 1990 (Jones, 1994). While approximately 25% of women reported being married more than once in 1980 (ibid), divorce is much more common among childless couples (Guest, 1992).

The country has also seen considerable economic development and urbanization over the past 50 years. Throughout the 20th century, the economy has shifted from being predominantly agricultural to a mixed economy with more manufacturing (Elias & Noone, 2011). In 1965-1970, only 17% of Indonesians lived in urban areas, but that percentage had doubled by 1990-1995 (Kim & Aassve, 2006). Educational levels have increased dramatically over the past 40 years, where less than 20% of children attended secondary school in 1975, but two thirds did in 2010 (Elias & Noone, 2011). Finally, the economy has shifted from being predominantly agricultural to a mixed economy with more manufacturing (Elias & Noone, 2011).

There are still few social welfare programs in Indonesia, and the most extensive programs have been implemented relatively recently, after most waves of IFLS data were collected. The Indonesia Social Security Law, which was passed in 1992, provides retirement benefits for formal sector workers who are employed by businesses with at least 10 employees (Arifianto, 2004). Participation in the program is voluntary and as of 2004,

only about 10% of Indonesians had some form of pension coverage (Arifianto, 2004). In 2002, the government passed the Manpower Act which detailed legislation regarding worker benefits including annual leave, minimum wage, sick leave, and maternity leave (Soewarto, 2003). The maternity leave benefit allows women three months of paid time off for the birth of a child, but some evidence suggests that the enforcement and supervision of labor standards are generally weak (Bennington & Habir, 2003). Normally, if parents both work, childcare for young children is provided by other family members or private childcare providers (Paramaditha, 2012). Indonesia therefore is a country in transition, which has seen significant changes in demography and economic development in recent decades, but which, so far, has few of the extensive social welfare programs which characterize high-income countries, and which may have implications for grandparental help.

Multiple Imputation

Table S1 indicates the amount of missing values for each variable. The total possible sample size varies depending on the analysis since only non-resident, surviving grandparents had data collected. The levels of missing data in this sample are typically less than 3%. We conducted multiple imputation to deal with missing values. The missing data is patterned by characteristics of the respondent, meeting the missing at random (MAR) assumption of multiple imputation. For example, grandfather's education was more likely to be missing when the mother had less education. Data were imputed using the variables in the analyses plus additional variables (including number of marriages, log of the husband's income, and postmarital residence). We generated five imputed datasets using the ICE method in STATA 13. The results using imputed data are substantively the same as the results that exclude missing data (tables available on request from authors).

Table S1: Descriptive statistics of variables used in analyses

		Mean	Standard Deviation	Range	n	% missing
	Wealth	0.08	0.97	-4 – 2.2	16021	1.40%
	Mother's age (years)	33.2	7.7	15-62	16250	0.00%
	Urban/Rural (1=urban, 0=rural)	0.48	0.5	0-1	16208	0.26%
All analyses	Mother's education ^a	2.7	1.1	1-5	16228	0.14%
	Number of living children	2.7	1.8	1-14	16250	0.00%
	Age of youngest child (years)	5.7	4.9	0-18	16250	0.00%
	Mother works (1=yes, 0=no)	0.51	0.5	0-1	16198	0.32%
All maternal	Number of mother's siblings	4.5	2.4	0-19	13613	0.37%
MGP analyses	HH help MGP (1=yes, 0=no)	0.10	0.29	0-1	6739	1.12%
	Financial help MGP (1=yes, 0=no)	0.52	0.5	0-1	6709	1.56%
	MGM's education ^a	1.7	0.8	1-5	11845	1.35%
	MGM's age (years)	57.8	10.8	27-105	11905	0.85%
MGM analyses	MGM works (1=yes, 0=no)	0.42	0.5	0-1	11954	0.44%
	MGM health	2.93	0.41	1-4	7051	0.42%
	HH help MGM (1=yes, 0=no)	0.07	0.25	0-1	5147	0.87%
	Financial help MGM (1=yes, 0=no)	0.38	0.49	0-1	5128	1.23%
	MGF's age (years)	62.1	10.5	32-105	9164	1.34%
	MGF's education ^a	2.1	0.9	1-5	9101	2.01%
MGF analyses	MGF works (1=yes, 0=no)	0.69	0.5	0-1	9201	0.94%
	MGF health	2.9	0.45	1-4	5431	0.91%
	HH help MGF (1=yes, 0=no)	0.03	0.16	0-1	2461	0.49%
	Financial help MGF (1=yes, 0=no)	0.30	0.46	0-1	2457	0.65%
All paternal	Number of father's siblings	4.6	2.4	0-20	10600	1.02%
PGP analyses	HH help PGP (1=yes, 0=no)	0.07	0.25	0-1	4639	1.00%
	Financial help PGP (1=yes, 0=no)	0.42	0.49	0-1	4625	1.30%
	PGM's age (years)	60.6	11.1	27-105	9280	0.98%
	PGM's education ^a	1.7	0.7	1-5	9148	2.39%
PGM analyses	PGM works (1=yes, 0=no)	0.37	0.48	0-1	9332	0.43%
	PGM health	2.89	0.42	1-4	5625	0.46%
	HH help PGM (1=yes, 0=no)	0.04	0.2	0-1	4643	0.92%
	Financial help PGM (1=yes, 0=no)	0.27	0.44	0-1	4634	1.11%
	PGF's age (years)	64.7	10.73	31-105	6597	1.02%
	PGF's education ^a	2	0.9	1-5	6503	2.43%
PGF analyses	PGF works (1=yes, 0=no)	0.64	0.48	0-1	6631	0.51%
	PGF health	2.85	0.46	1-4	3988	0.77%
	HH help PGF (1=yes, 0=no)	0.02	0.14	0-1	1967	0.61%
	Financial help PGF (1=yes, 0=no)	0.23	0.42	0-1	1962	0.86%

Note: n = sample size, MGM = maternal grandmother, MGF = maternal grandfather, PGM = paternal grandmother, PGF = paternal grandfather, MGP = maternal grandparents, PGP = paternal grandparents, HH = household. When the range is 0-1, the variable is dichotomous and the mean represents the proportion of 'yes' responses. ^a Education is measured as 1= No Education, 2 = Primary school, 3 = Jr. secondary school, 4= Sr. secondary school, 5 = Tertiary education.

Table S2: Correlation Matrices of independent and dependent variables

a) Maternal grandmother variables

	MGM educ	MGM age	MGM work	Mother's educ	Mother's age	Mother's work	Parent's wealth	Mother's num of siblings	Age youngest child	Num of living children	MGM health	MGM financial help	MGP financial help	MGM HH help
MGM education														
MGM age	-0.1612*													
MGM work	-0.0139	-0.1936*												
Mother's education	0.5061*	-0.0343*	-0.0725*											
Mother's age	-0.1397*	0.554*	-0.2031*	-0.0927*										
Mother's work	-0.0192*	0.1391*	0.0891*	0.023*	0.202*									
Parent's wealth	0.2467*	0.0939*	-0.1252*	0.396*	0.1557*	-0.0057								
Mother's number of siblings	0.0282*	0.1438*	-0.0832*	0.0563*	0.0809*	0.0056	0.0384*							
Age youngest child	-0.176*	0.3585*	-0.1114*	-0.1633*	0.6412*	0.1993*	0.1116*	0.018*						
Number of living children	-0.2*	0.3323*	-0.1218*	-0.2624*	0.6094*	0.0404*	-0.0127	0.0766*	0.2028*					
MGM health	0.0733*	-0.0643*	0.1697*	0.0421*	-0.1904*	-0.0251*	0.0014	-0.0441*	-0.1253*	-0.1598*				
MGM gives financial help	0.051*	-0.1314*	0.1701*	0.0422*	-0.1397*	0.0098	-0.0206	-0.0223	-0.1071*	-0.1309*	0.0808*			
MGP give financial help	0.0658*	-0.128*	0.1137*	0.0694*	-0.142*	0.0088	-0.0497*	-0.0783*	-0.1131*	-0.1112*	0.0667*	.		
MGM gives household help	0.0192	-0.0889*	0.0535*	0.045*	-0.1094*	-0.0006	-0.0049	-0.0143	-0.1278*	-0.0731*	0.0431*	0.1612*	.	
MGP gives household help	0.0395*	-0.0884*	0.0464*	0.0557*	-0.1156*	0.0141	-0.0188	-0.0719*	-0.1129*	-0.0785*	0.0306*	.	0.1814*	.

b) Maternal grandfather variables

	MGF educ	MGF age	MGF work	Mother's educ	Mother's age	Mother's work	Parent's wealth	Mother's num of siblings	Age youngest child	Num living children	MGF health	MGF financial help	MGP financial help	MGF HH help	MGP HH help
MGF education															
MGF age	-0.1139*														
MGF work	-0.0597*	-0.33*													
Mother's education	0.5416*	-0.044*	-0.0894*												
Mother's age	-0.0995*	0.4193*	-0.2468*	-0.0927*											
Mother's work	-0.0101	0.0998*	-0.009	0.023*	0.202*										
Parent's wealth	0.2692*	0.0522*	-0.1165*	0.396*	0.1557*	-0.0057									
Mother's num of siblings	0.0501*	0.1738*	-0.1066*	0.0563*	0.0809*	0.0056	0.0384*								
Age youngest child	-0.1456*	0.2833*	-0.1364*	-0.1633*	0.6412*	0.1993*	0.1116*	0.018*							
Num living children	-0.1823*	0.2555*	-0.117*	-0.2624*	0.6094*	0.0404*	-0.0127	0.0766*	0.2028*						
MGF health	0.073*	-0.0824*	0.2689*	0.0615*	-0.2154*	-0.0159	-0.0162	-0.0647*	-0.1293*	-0.1629*					
MGF financial help	0.0133	-0.1121*	0.1219*	0.0488*	-0.1108*	-0.0438*	-0.0309	0.0157	-0.1261*	-0.0626*	0.0681*				
MGP financial help	0.0594*	-0.1296*	0.1329*	0.0694*	-0.142*	0.0088	-0.0497*	-0.0783*	-0.1131*	-0.1112*	0.088*	.			
MGF HH help	0.0018	-0.0407*	0.0366	0.012	-0.0639*	0.0114	0.007	0.0025	-0.0604*	-0.0322	0.087*	0.1435*	.		
MGP HH help	0.0329*	-0.086*	0.0744*	0.0557*	-0.1156*	0.0141	-0.0188	-0.0719*	-0.1129*	-0.0785*	0.039*	.	0.1814*	.	

c) Paternal grandmother variables

	PGM educ	PGM age	PGM work	Mother's educ	Mother's age	Mother's work	Parent's wealth	Father's num of siblings	Age youngest child	Num living children	PGM health	PGM financial help	PGP financial help	PGM HH help
PGM age	-0.1208*													
PGM work	-0.0329*	-0.1953*												
Mother's educ	0.4129*	-0.0086	-0.0634*											
Mother's age	-0.1192*	0.457*	-0.1386*	-0.0927*										
Mother's work	-0.0185*	0.1034*	0.0905*	0.023*	0.202*									
Parent's wealth	0.2148*	0.0897*	-0.1185*	0.396*	0.1557*	-0.0057								
Father's num of siblings	0.0832*	0.0906*	-0.0673*	0.1174*	-0.0005	-0.0044	0.0452*							
Age youngest child	-0.1398*	0.3064*	-0.0735*	-0.1633*	0.6412*	0.1993*	0.1116*	-0.0301*						
Num living children	-0.186*	0.2969*	-0.0802*	-0.2624*	0.6094*	0.0404*	-0.0127	-0.0068	0.2028*					
PGM health	0.0583*	-0.0488*	0.1544*	0.0424*	-0.1734*	-0.0272*	0.0082	-0.0107	-0.108*	-0.1384*				
PGM financial help	0.0632*	-0.1292*	0.1415*	0.0242	-0.1345*	-0.0378*	-0.0335*	-0.0246	-0.1176*	-0.1061*	0.0805*			
PGP financial help	0.0351*	-0.1225*	0.1043*	0.0392*	-0.1688*	-0.0076	-0.0684*	-0.0704*	-0.1262*	-0.1432*	0.0676*	.		
PGM HH help	0.0279	-0.0435*	0.0285	0.0368*	-0.0647*	0.02	-0.0344*	-0.0034	-0.1018*	-0.047*	0.0326	0.1694*	.	
PGP HH help	0.0027	-0.0442*	0.0612*	0.02	-0.0834*	0.0309*	-0.0098	-0.0403*	-0.0834*	-0.0451*	0.0092	.	0.1738*	.

d) Paternal grandfather variables

	PGF educ	PGF age	PGF work	Mother's educ	Mother's age	Mother's work	Parent's wealth	Father's num of siblings	Age youngest child	Num living children	PGF health	PGF financial help	PGP financial help	PGF HH help
PGF age	-0.0861*													
PGF work	-0.0839*	-0.3106*												
Mother's educ	0.4467*	-0.0167	-0.0954*											
Mother's age	-0.097*	0.3131*	-0.1768*	-0.0927*										
Mother's work	-0.0175*	0.0844*	-0.0218*	0.023*	0.202*									
Parent's wealth	0.234*	0.0354*	-0.1299*	0.396*	0.1557*	-0.0057								
Father's num of siblings	0.1084*	0.1333*	-0.0867*	0.1174*	-0.0005	-0.0044	0.0452*							
Age youngest child	-0.1254*	0.1998*	-0.0941*	-0.1633*	0.6412*	0.1993*	0.1116*	-0.0301*						
Num living children	-0.1766*	0.1939*	-0.0774*	-0.2624*	0.6094*	0.0404*	-0.0127	-0.0068	0.2028*					
PGF health	0.041*	-0.0491*	0.2354*	0.0258*	-0.1471*	-0.0348*	-0.004	-0.0129	-0.1052*	-0.1051*				
PGF financial help	0.0344	-0.1165*	0.1352*	0.0155	-0.1568*	-0.0104	-0.0449*	-0.0333	-0.0933*	-0.0905*	0.0756*			
PGP financial help	0.0628*	-0.1233*	0.1362*	0.0392*	-0.1688*	-0.0076	-0.0684*	-0.0704*	-0.1262*	-0.1432*	0.0962*	.		
PGF HH help	-0.0331	0.0072	0.0633*	-0.0195	-0.0489*	0.0063	-0.0184	-0.0377	-0.0522*	0.0003	0.0535	0.1065*	.	
PGP HH help	0.0254	-0.0325*	0.0691*	0.02	-0.0834*	0.0309*	-0.0098	-0.0403*	-0.0834*	-0.0451*	-0.0015	.	0.1738*	.

Note: MGM = maternal grandmother, MGF = maternal grandfather, MGP = maternal grandparents, PGM = paternal grandmother, PGF = paternal grandfather, PGP = paternal grandparents, HH = household, num = number, educ = education. Health is ranked from very unhealthy (1) to very healthy (4). Education is ranked from (1) none to (5) tertiary. * represents correlations where $p < 0.05$.

Table S3: Random effects logistic regression analyses of whether grandparents provided household help and financial help

	Household help		Financial help	
	Log Odds	SE	Log Odds	SE
Lineage (ref = maternal)				
Paternal	-0.351***	0.059	-0.478***	0.032
Grandparent (ref = single grandfather)				
Married grandparents	1.232***	0.114	0.942***	0.050
Single grandmother	0.893***	0.118	0.394***	0.052
Grandparent's education (ref = none)				
Primary	0.116	0.071	0.301***	0.042
Jr. Secondary	0.113	0.121	0.194**	0.073
Sr. Secondary	0.208	0.128	0.256**	0.080
University	0.210	0.254	0.599***	0.161
Age category (ref = 55 and under)				
56-65	-0.245***	0.066	-0.265***	0.039
66-75	-0.524***	0.084	-0.504***	0.046
75 +	-0.912***	0.148	-0.810***	0.069
Number of GP's adult children	-0.056***	0.013	-0.030***	0.007
Constant	-3.490***	0.145	-0.684***	0.069
n	24204 (7254)		24129 (7249)	

Note: Sample size refers to all possible helping behaviors across paternal and maternal, married and single grandparents. SE refers to standard error and n reports sample size with number of unique individuals in parentheses. Multiple imputation was not used for this model.

$^{\wedge}p < .10$, $*p < .05$, $**p < .01$, $***p < .001$

Table S3 tests whether there is a difference in helping behavior between lineage (maternal or paternal kin) and type of grandparent (married or single, grandmother or grandfather) by running a random effects logistic regression models where ‘received help’ was the outcome for both types of help (financial and household), the unit of analysis was each possible helping event reported by the parent and the random effect grouped helping events by the individual receiving the help. The table shows that maternal kin provide significantly more help than paternal kin across both helping domains (household help, and financial help), even when grandparental age, education, and number of other children are controlled for. Additionally, married grandparents provide higher rates of help than single grandmothers, who provide significantly more help than single grandfathers. Again, this pattern exists for all types of help.

Table S4a: Logistic regression analyses predicting grandparental financial help by wave

Wave	Maternal												Paternal											
	Married Grandparents				Single Grandmother				Single Grandfather				Married Grandparents				Single Grandmother				Single Grandfather			
	1993	1997	2000	2007	1993	1997	2000	2007	1993	1997	2000	2007	1993	1997	2000	2007	1993	1997	2000	2007	1993	1997	2000	2007
Help from other GP (ref = No help from other GP)																								
Other GP dead	+	+	+	+	+	+	+	+	+	+	+	-^	+	+	+	+	+	+	+	+	-	+	+	+
Other GP help	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+
Live with other GP	+	+	+	+	+	-	+	+	-	+	+	-	-	-	-	+	+	+	+	-	-	+	+	+
GP Education (ref = none)																								
Elementary	+	+	+	+	-	+	-	-	+	+	+	+	+	-	+	+	+	+	+	+	-	+	+	-
Jr. High	+	+	-	+	-	-	+	-	-	+	-	-	+	+	+	+	+	+	-	+	+	+	+	-^
Sr. High	+	+	+	+	-	-	+	+	-	-	+	-^	-	+	+	+	-	+	+	-	+	+	+	+
University	+	+	+	+	+	+	+	+	+	+	-	-	-	+	+	+				+				+
GP Age																								
	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+	-	-*		+	-	-^
GP work - married (ref = neither work)																								
One works	+	+	+	+									+	+	+	+								
Both work	+	+	+	+									+	+	+	+								
GP works – not married																								
					-	+	+	+	+	+	+	+					+	+	+	+	-	-	+	+
Mother's Education (ref = none)																								
Elementary	+	+	+	+	-	+	+	+	-	+	+	+	-	+	+	-	+	-	+	+	+	+	-	+
Jr. High	+	+	+	+	-	-	+	+	+	+	+	+	-	+	+	-^	+	-	+	+	+	+	-	+
Sr. High	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	-^	-^	-	+	+	+	-	-	+
University	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	-*	-	-	+	+	+	-	+	-
Mother's age																								
	-	-	+	-	-	-	-	-	+	+	-	+	-^	-	-	-*	+	-	-	-	-	-	-	-*
Mother works																								
	-	+	+	-	-	-	-	+	+	-	-^	-	+	+	-	-	+	-	-**	+	-	-	-	+
P's wealth																								
	-	-	-*	-	-	-	+	-	-	-	-	-	-	-	-***	+	+	-	-	-	-	+	-	+
Urban																								
	-	-	-	-	+	-	+	-	-	-	-	-	-*	-	-	-	-	+	+	+	-	-	+	+
Number of P's siblings																								
	-	+	+	-*	+	+	-	+	-	-	+	+	-*	+	-	-	-	+	-	+	-	+	-	-
Number of living children (ref = 1)																								
2	+	+	-**	-	-	-	+	-	+	+	+	+	+	-	+	+	-	+	-	-	-	+	-	-
3-4	+	+	-	-	-	-	-	-	-	-	+	+	-	-	+	-	-	+	-	-	+	+	-	+
5+	+	+	-*	+	-	-	-	-^	-	-	+	+	+	+	+	+	+	+	-	-	+	+	-	+
Age of youngest child (Ref = Under 5)																								
5-10	+	-	-**	-	-	-	-	-	+	-	-	-	-	-	-^	+	+	-	-	-	+	-	+	-
Over 10	+	-	-**	-	+	-	-	-	-	-	-**	-	+	-**	-	+	-	-	-*	-*	+	-	+	-
Co-resides with other GP(s)																								
	-	+	-	-	-	+	-	+	+	-	-	+	-	+	+	-	-	+	-	+	+	-	-	-
Constant																								
	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	+	-	-	-	+

Note: + refers to odds ratios greater than 1, - refers to odds ratios less than 1. Blank cells exist when no individuals fulfill that criterion. Models do not use multiple imputation. Models control for region and religion (omitted from the table). GP = grandparent. P = parent. For married grandparents, the grandfather's education is used for GP Education. GP Age refers to grandparent's age, defined as the average of the grandmother's and grandfather's age for married grandparents. GP work (married) variable refers to grandparental work for married grandparents and the GP work (single) variable refers to whether the grandparent worked for models of individual grandparents. ^ $p < 0.10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table S4b: Logistic regression analyses predicting grandparental household help by wave

Wave	Maternal								Paternal							
	Married Grandparents				Single Grandmother				Married Grandparents				Single Grandmother			
	1993	1997	2000	2007	1993	1997	2000	2007	1993	1997	2000	2007	1993	1997	2000	2007
Help from other GP (ref = No help from other GP)																
Other GP dead	+	+	-	-	+	+	-	+^	-	+^	-	+	+	+	+	+
Other GP help	+	+	+*	+	-	+	+	+	***	+	+*	+	+^	+	-	-
Live with other GP	-	-	+	+						-	+	+		+	-	-
GP Education (ref = none)																
Elementary	-	-	+	-	-	+^	-	-	+	+	-	+	-	-	-	+^
Jr. High	-	-	+	-		+	-^	-	+	-	+	+	+		-	+*
Sr. High	-	-	+	-			-	+	+	-	+	+			+	-
University	+	-	-	-					+^	+^	+	+				***
GP Age																
	-	+*	-	+	-	+	-	-	+	+	+^	+	+	+	-	+
GP work - married (ref = neither work)																
One works	+	***	+	+^					+	-	+	+				
Both work	+*	+*	+*	+*					+	+	+	+*				
GP works – not married																
					+	+*	+	+					+	+	-	+
Mother's Education (ref = none)																
Elementary	-	-	+	-	+	+*	-^	+	+	+	+	-	+	+	+	+
Jr. High	+	-	+	-	+	+*	-	+	+	+	+	+	+	+	+	+
Sr. High	+	+	+	-	+	+^	-	+	+	+	+	+	+	+	+	+
University	+	+	+	+		***	ref	ref	ref	+	-	+	+	+*	+	+
Mother's age																
	+	-*	-	-*	+	-	-	+	-	-	-	-*	+	-^	+	-
Mother works																
	+^	-	+^	+*	+	+*	+	-^	+	+*	-	+^	-	+	+*	+
P's wealth																
	-	-	-	+	+	+	+	-	-	-	+	+	+	-	+	-*
Urban																
	-	-	-	-	-	-	-^	+	-	-	-	-*	-	+	-	-
Number of P's siblings																
	-	-	-	-	-	+	+	+	-**	-	-**	+	-	+	-	-
Number of living children (ref = 1)																
2	+	-	-	-	-	-*	+	-	-	-	+	+	+	-	-	-
3-4	+	-	-	+	-	-**	+	-	+	-	-	+	+	+	-**	+
5+	+	-	+	+	-^	-	+	-	-	+	+	+^	-	+	-*	-
Age of youngest child (Ref = Under 5)																
5-10	-	-	-	-**	-*	+	-	-*	-	-	-	+	-	-	-	-
Over 10		-	-^	-*	-*	-^	-*	-*	-	-^	-	-^	-	-	-**	-**
Co-resides with other GP(s)																
		+	-	-		+	+	+		-	-	-		-	+	-
Constant																
	-	-**	-*	-	-	-***	+	-	-	-**	-^	-^	-*	-	-*	-^

Note: + refers to odds ratios greater than 1, - refers to odds ratios less than 1. Blank cells exist when no individuals fulfill that criterion. Ref represents a category that is the reference category because the expected reference category is missing. Models do not use multiple imputation. Models control for region and religion (omitted from the table). GP = grandparent. P = parent. For married grandparents, the grandfather's education is used for GP Education. GP Age refers to grandparent's age, defined as the average of the grandmother's and grandfather's age for married grandparents. GP work (married) variable refers to grandparental work for married grandparents and the GP work (single) variable refers to whether the grandparent worked for models of individual grandparents. ^ $p < 0.10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table S5a: Random effects logistic regression analyses predicting grandparental financial help, grouped by individual to account for repeated measures with grandparental health

	Grandparents		Maternal Grandmother		Grandfather		Grandparents		Paternal Grandmother		Grandfather	
	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
GP's Health	1.27*	0.150	1.22^	0.139	1.022	0.183	1.542**	0.225	1.208	0.148	1.147	0.296
GP Education (ref = none)												
Elementary	1.22^	0.135	0.864	0.102	1.241	0.264	1.518***	0.196	1.076	0.127	1.451^	0.297
Jr. High	1.12	0.201	0.763	0.176	0.996	0.341	2.308***	0.508	1.043	0.260	1.420	0.505
Sr. High	1.23	0.223	1.644^	0.486	0.786	0.288	1.951**	0.439	0.998	0.293	2.284*	0.861
University	1.68^	0.518	2.26	1.976	0.771	0.515	3.593***	1.359	1.876	1.400		
GP Age	0.988*	0.006	0.994	0.006	0.987	0.010	1.006	0.006	0.988^	0.006	0.992	0.009
GP work - married (ref = neither work)												
One works	2.03***	0.228					1.45**	0.186				
Both work	2.12***	0.244					2.04***	0.279				
GP works - not married			2.58***	0.312	1.741**	0.340			2.063***	0.249	1.999***	0.365
Mother's Education (ref = none)												
Elementary	1.54^	0.357	1.86*	0.457	1.521	0.569	1.234	0.394	1.854*	0.500	1.590	0.591
Jr. High	1.86*	0.466	2.41**	0.664	1.555	0.651	1.295	0.432	0.736^	0.504	1.832	0.775
Sr. High	1.88*	0.485	2.09*	0.597	2.20^	0.954	1.184	0.401	1.747^	0.522	1.802	0.790
University	2.27**	0.665	2.22*	0.742	2.154	1.173	1.087	0.407	1.882^	0.643	1.453	0.806
Mother's age	0.984	0.011	0.995	0.012	1.005	0.019	0.977^	0.012	0.987	0.012	0.950*	0.019
Mother works	0.995	0.084	1.02	0.108	0.74^	0.120	0.872	0.087	0.841	0.092	1.147	0.184
Parent's wealth	0.899*	0.046	0.967	0.060	0.862	0.084	0.863*	0.054	0.960	0.063	0.849	0.086
Urban	0.835*	0.075	0.948	0.106	0.817	0.145	0.652***	0.071	1.035	0.120	1.067	0.196
Number of P's siblings	0.970	0.019	1.00	0.022	1.039	0.030	0.968	0.022	0.989	0.022	0.984	0.032
Number of living children (ref = 1)												
2	0.831^	0.086	0.883	0.131	1.44^	0.296	1.191	0.146	0.880	0.126	0.697^	0.150
3-4	0.894	0.119	0.817	0.135	1.11	0.285	0.597**	0.098	0.712^	0.124	0.866	0.226
5+	0.829	0.174	0.662^	0.150	1.52	0.550	0.534*	0.151	0.895	0.216	1.458	0.556
Age of youngest child (ref = Under 5)												
5-10	0.824^	0.083	0.875	0.112	0.784	0.151	0.877	0.105	0.817	0.108	0.731	0.145
Over 10	0.703*	0.101	0.784	0.122	0.434**	0.119	0.827	0.153	0.575***	0.100	1.113	0.306
Co-resident with other GPs	0.746**	0.085	0.944	0.137	0.892	0.170	0.856	0.104	0.918	0.124	1.090	0.214
Constant	0.823	0.477	0.254*	0.151	0.187^	0.178	0.177*	0.128	0.385	0.248	0.154^	0.162
N	4055 (3014)		2818 (2183)		1264 (1016)		2920 (2295)		2731 (2126)		1972 (1309)	

Note: Model controls for region and religion (omitted from the table). GP = grandparent. P = parent, SE = standard error. The 'grandparents' columns refer to married grandparents. For married grandparents, the grandfather's education is used for GP Education. GP Age refers to grandparent's age, defined as the average of the grandmother's and grandfather's age for married grandparents. GP work (married) variable refers to grandparental work for married grandparents and the GP work (single) variable refers to whether the grandparent worked for models of individual grandparents. N reports sample size with number of unique individuals in parentheses. Grandparent's health is a continuous variable measured from very unhealthy (1) to very healthy (4) and is the average score for both grandparents in the married grandparents' model. ^ p < 0.10, * p < .05, ** p < .01, *** p < .001

Table S5b: Random effects logistic regression analyses predicting grandparental household help, grouped by individual to account for repeated measures with grandparental health

	Maternal				Paternal			
	Grandparents		Grandmother		Grandparents		Grandmother	
	OR	SE	OR	SE	OR	SE	OR	SE
Grandparent's Health	1.05	0.180	1.26	0.227	0.745	0.164	1.330	0.338
GP Education (ref = none)								
Elementary	0.202	0.167	0.733^	0.125	1.150	0.220	1.131	0.251
Jr. High	0.061	0.255	0.494*	0.174	1.340	0.433	2.098^	0.826
Sr. High	0.148	0.253	0.867	0.327	1.532	0.509	1.294	0.664
University	0.233	0.391			1.353	0.712	6.604	5.482
GP Age	-0.003	0.008	0.987	0.009	1.016^	0.009	0.998	0.011
GP work - married (ref = neither work)								
One works	0.464**	0.172			1.428	0.313		
Both work	0.555**	0.176			1.959**	0.428		
GP works - not married			1.23	0.196			0.971	0.208
Mother's Education (ref = none)								
Elementary	0.371	0.437	4.50*	3.26	0.994	0.544	2.186	1.271
Jr. High	0.623	0.45	5.49*	4.07	1.290	0.727	1.778	1.084
Sr. High	0.676	0.46	5.87*	4.40	1.302	0.750	2.021	1.265
University	0.723	0.497	5.76*	4.56	1.136	0.708	2.133	1.458
Mother's age	-0.038*	0.016	0.992	0.018	0.956*	0.188	1.017	0.023
Mother works	0.373***	0.117	1.006	0.154	1.129	0.171	1.500*	0.310
Parent's wealth	-0.015	0.07	0.979	0.088	1.096	0.105	0.772*	0.085
Urban	-0.142	0.124	0.911	0.147	0.592***	0.096	0.918	0.195
Number of P's siblings	-0.082**	0.028	0.995	0.031	0.976	0.036	0.972	0.042
Number of living children (ref = 1)								
2	-0.069	0.139	1.16	0.239	1.164	0.215	0.805	0.207
3-4	-0.065	0.194	1.17	0.278	0.751	0.210	0.870	0.273
5+	0.091	0.327	0.831	0.299	1.650	0.737	0.306*	0.160
Age of youngest child (ref = Under 5)								
5-10	-0.508***	0.152	0.618*	0.118	0.999	0.184	0.716	0.167
Over 10	-0.906***	0.261	0.366***	0.097	0.453^	0.187	0.152***	0.065
Co-resident with other GPs	-0.274^	0.16	0.876	0.184	0.767	0.152	0.567*	0.159
Constant	-1.846*	0.876	0.036**	0.039	0.134^	0.153	0.006***	0.009
N	4044(3005)		2801 (2169)		2918 (2294)		2725 (2120)	

Note: Model controls for region and religion (omitted from the table). GP = grandparent. P = parent, SE = standard error. For married grandparents, the grandfather's education is used for GP Education. GP Age refers to grandparent's age, defined as the average of the grandmother's and grandfather's age for married grandparents. GP work (married) variable refers to grandparental work for married grandparents and the GP works (not married) variable refers to whether the grandparent worked for models of single grandmothers. n reports sample size with number of

unique individuals in parentheses. Grandparent's health is a continuous variable measured from very unhealthy (1) to very healthy (4) and is the average score for both grandparents in the married grandparents' model. $\wedge p < 0.10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table S6: Effect of mother's marital status on the likelihood of receiving financial and household help from *maternal* grandparents

	Financial Help						Household Help			
	Married		Single Grandmother		Single Grandfather		Married		Single Grandmother	
	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
Marital Status (ref = married)										
Divorced	1.172	0.353	1.194	0.329	1.523	0.557	0.955	0.447	2.532**	0.899
Widowed	1.63	0.531	1.070	0.271	1.501	0.570	1.569	0.805	1.526	0.687
GP Education (ref = none)										
Elementary	1.375***	0.118	1.104	0.096	1.379*	0.209	1.087	0.136	0.918	0.126
Jr. High	1.33*	0.189	0.958	0.173	1.119	0.286	1.001	0.203	0.745	0.213
Sr. High	1.623**	0.247	1.578*	0.364	0.935	0.279	1.112	0.235	0.880	0.303
University	2.325***	0.618	3.151	2.313	0.982	0.528	1.370	0.456	0.602	0.658
GP Age	0.993	0.004	0.99*	0.004	0.990	0.007	1.002	0.006	0.991	0.007
GP work - married (ref = neither work)										
One works	1.719***	0.149					1.854***	0.273		
Both work	2.222***	0.199					2.000***	0.299		
GP works – not married			2.215***	0.180	1.71***	0.230			1.284*	0.160
Mother's Education (ref = none)										
Elementary	1.561**	0.243	1.894***	0.293	1.461	0.355	1.226	0.320	4.001***	1.608
Jr. High	2.152***	0.376	2.235***	0.406	1.755*	0.499	1.723^	0.485	4.615***	1.965
Sr. High	2.245***	0.407	2.06***	0.393	2.407**	0.714	1.95*	0.561	4.901***	2.138
University	2.656***	0.581	2.323***	0.557	1.847	0.770	1.978*	0.661	5.424***	2.619
Mother's age	0.996	0.008	1.002	0.009	1.014	0.014	0.974*	0.013	0.992	0.014
Mother works	1.146*	0.075	1.078	0.082	0.894	0.108	1.412***	0.135	1.184	0.146
P's wealth	0.864***	0.035	0.938	0.045	0.905	0.067	0.935	0.053	0.979	0.072
Urban	0.826**	0.060	0.932	0.079	0.796^	0.108	0.849	0.086	0.860	0.113
Number of P's siblings	0.967*	0.015	1.020	0.017	1.024	0.023	0.932**	0.021	0.997	0.025
Number of living children (ref = 1)										
2	0.899	0.075	0.916	0.103	1.120	0.180	0.887	0.104	1.039	0.175
3-4	0.889	0.092	0.786*	0.095	0.862	0.162	0.929	0.140	0.957	0.179
5+	0.783	0.126	0.701*	0.114	1.023	0.271	0.741	0.200	0.692	0.187
Age of youngest child (ref = Under 5)										
5-10	0.924	0.071	0.889	0.081	0.826	0.118	0.647***	0.079	0.652**	0.098
Over 10	0.814^	0.092	0.844	0.097	0.508***	0.101	0.411***	0.086	0.32***	0.071
Constant	0.432*	0.145	0.27***	0.092	0.114***	0.065	0.083***	0.043	0.041***	0.026
n	6815 (3837)		5192 (2964)		2473 (1588)		6774 (3814)		5164 (2949)	
rho	0.236	0.025	0.234	0.030	0.292	0.053	0.129	0.053	0.071	0.075

Note: This table is identical to the model presented in Table 2a & b except that our sample is slightly different: here we include all women, not just married women. Model controls for region, religion (not shown) GP = grandparents, P = parents, OR = odds ratio, SE = standard error. rho represents the intra-class correlation. We have only presented the results of household help from married grandparents and single grandmothers because the number of helping events by single grandfathers was too small for the model to converge controlling for necessary covariates. n reports sample size with number of unique individuals in parentheses. ^ p < 0.10, * p < .05, ** p < .01, *** p < .001

Table S7a: Random effects logistic regression analyses of financial help received by grandparent lineage (maternal or paternal) and type (married or single and grandmother or grandfather); sample divided by postmarital residence.

	Financial Help																	
	Maternal									Paternal								
	Married Grandparents			Single Grandmother			Single Grandfather			Married Grandparents			Single Grandmother			Single Grandfather		
	Neo	Matri	Patri	Neo	Matri	Patri	Neo	Matri	Patri	Neo	Matri	Patri	Neo	Matri	Patri	Neo	Matri	Patri
OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	
GP Education (ref = none)																		
Elementary	***	^	+	+	-	+	+	+	+	+	***	+	+	+	+	+	+	+
Jr. High	+	^	+	-	+	+	+	-	^	+	+	***	^	^	+	+	+	+
Sr. High	+	+	+	+	-	+	+	-	+	^	+	^	+	+	^	+	+	+
University	+	^	+	+			+	-	-	+	^	+	-	+				+
GP Age	+	-	+	-	-	-	-	-	-	-	+	+	-	-	+	+	+	+
GP work - married (ref = neither work)																		
One works	***	+	+							+	-	***						
Both work	***	***	***							+	***	***	***					
GP works – not married				***	***	***	^	^	+				+	***	+	+	+	+
Mother's Education (ref = none)																		
Elementary	+	+	+	***	+	+	+	+	+	+	^	+	-	+	-	+	+	+
Jr. High	***	^	+	+	+	+	-	+	+	^	+	+	-	+	-	+	^	+
Sr. High	***	^	^	+	^	+	+	+	+	+	+	+	-	+	-	+	+	+
University	***	+	+	+	***	-	+	+	+	+	+	+	+	+	+	+	+	-
Mother's age	**	+	-	+	*	-	-	+	+	-	-	^	+	+	^	-	^	-
Mother works	+	+	+	-	+	+	^	-	+	+	-	+	-	-	-	-	-	-
P's wealth	***	**	-	-	+	**	*	+	-	-	*	-	-	-	+	-	^	-
Urban	^	+	-	+	+	-	+	-	-	*	-	+	+	+	+	-	+	+
Number of P's	**	+	-	+	^	+	+	-	-	-	*	-	^	-	-	-	-	-
Number of living children (ref = 1)																		
2	-	*	-	-	-	+	+	+	+	-	-	-	*	-	+	-	-	-
3-4	+	*	-	-	^	-	+	-	-	*	**	-	*	**	-	-	+	-
5+	+	^	-	*	+	-	-	-	+	-	+	-	*	*	+	+	+	+
Age of youngest child (Ref = Under 5)																		
5-10	-	-	-	-	+	-	+	+	*	-	^	-	^	+	+	+	+	+
Over 10	+	-	-	^	+	-	-	+	-	*	-	-	*	-	^	+	+	+
Constant	-	-	-	*	-	^	-	-	-	^	-	*	^	^	+	-	^	-

Note: Blank cells exist when no individuals fulfill that criterion. Neo represents couples who lived in a neolocal postmarital residence. Matri represents couples who lived matrilocally (with the wife's parents) after marriage. Patri represents couples who lived patrilocally (with the husband's parents) after marriage. GP refers to grandparents, P refers to parents, OR refers to odds ratios, + refers to odds ratios greater than 1, - refers to odds ratios less than 1. ^ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Models do not use multiple imputation.

Table S7b: Random effects logistic regression analyses of household help received by grandparent lineage (maternal or paternal) and type (married or single and grandmother or grandfather); sample divided by postmarital residence.

	Household help											
	Maternal						Paternal					
	Married Grandparents			Single Grandmother			Married Grandparents			Single Grandmother		
Neolocal	Matrilocal	Patrilocal	Neolocal	Matrilocal	Patrilocal	Neolocal	Matrilocal	Patrilocal	Neolocal	Matrilocal	Patrilocal	
OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	
GP Education (ref = none)												
Elementary	-	-	+	-	+	+	+	-	+^	-^	+^	+
Jr. High	-	+	-	-	-	+^	-	-	+	-	+	+
Sr. High	-	-	+	-	-		+^	-	-	-	+	+
University	-	+**	+	+			-	+	+*		+	+
GP Age	-	+	+	-	+	-	+	+	+	+	-	-
GP work - married (ref = neither work)												
One works	+^	+**	+				+	-	-			
Both work	+	+**	+				+	+	+			
GP works – not married				+	+*	-				-	+	+
Mother's Education (ref = none)												
Elementary	-	-	+	+	+	+	+	+	+	+	ref	ref
Jr. High	+	+	+	+	+	+*	+	+	+	+	+	-
Sr. High	+	+	+*	+	+^	+	+	+	+	+	+	-
University	+	+	+	+	+*	+	+	+	+	+*		
Mother's age	-	-	-**	+	-	-	-	-	-*	+	-	+
Mother works	+	+	+	+	+	+	+	+^	+*	+	+**	+
P's wealth	+	-	-	+	-	-	-	+	-	-^	-	+
Urban	-	+	-	-	-	-	-*	-	-	-	+	-
Number of P's	-*	-^	-	+	-	+	-	-	+	-	-	-
Number of living children (ref = 1)												
2	-	-	+^	-	+	-	-*	+	+	-	-	-
3-4	-	-	+*	-	-	-	-	-	+	-	+	+
5+	-	-		-^	-	+	-		+**	-	-	-
Age of youngest child (Ref = Under 5)												
5-10	-	-*	-	-	-	+	+	-	+	-	+	-
Over 10	-^	-*	-	-*	-**	-	-	-	-	-^	-	-
Constant	-	-*	-*	-	-**	-*	-*	-	-^	-	-^	-

Note: blank cells exist when no individuals fulfill that criterion. Ref means that the expected reference category did not have any individuals, so the reference category has been changed. Neolocal represents couples who lived in neolocal postmarital residence. Matrilocal represents couples who lived with the wife's parents after marriage. Patrilocal represents couples who lived with the husband's parents after marriage. GP refers to grandparents, P refers to parents, OR refers to odds ratios, + refers to odds ratios greater than 1, - refers to odds ratios less than 1. ^ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Models do not use multiple imputation.

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