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Short report

CHILDLESSNESS AND INVESTMENT IN NIECES, NEPHEWS, AUNTS AND UNCLES IN FINLAND

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Summary. Kin selection theory predicts that individuals may increase their inclusive fitness by investing in their genetically related kin. In addition, according to the reproductive value hypothesis, individuals may increase their fitness more by investing in their kin in descending rather than ascending order. The present study uses the Generational Transmissions in Finland data collected in 2012 ($n = 601$ women) and analyses whether childless younger women invest more in their kin than younger women with children. The study finds that childless women are more likely than mothers to invest in their nieces and nephews but not their aunts and uncles. Thus the results are in line with the reproductive value prediction.

Childlessness is common in many modern Western societies (Buchanan & Rotkirch, 2013). For instance, 20% of Finnish women over the age of 40 have not given birth (Statistics Finland, 2011). These numbers are similar to those of many other Western countries (Hakim, 2005). Since it is unusual to have a first child after the age of 40, the majority of these women remain childless.

Studies have shown that childless individuals may give more support to their ascendants than parents do (e.g. Komter & Vollebergh, 2002; Albertini & Kohli, 2009). This could be because they are trying to buffer themselves against social isolation (Wenger *et al*., 2000). Even though childlessness has been an important topic in family sociology (e.g. Beck & Beck-Gernsheim, 2002), few studies have separated kin by the rate of genetic relatedness when researching helpers.

Kin selection theory predicts that individuals may increase their inclusive fitness by investing in their genetically related kin (Hamilton, 1964). Individuals share on average 25% of their genes with their nieces, nephews, aunts and uncles. However, not only genetic relatedness but also the recipient's reproductive value may matter (Hughes, 1988). If someone tries to maximize his or her inclusive fitness, it is more effective to support

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kin in descending rather than ascending order. Therefore women who do not have children of their own may increase their inclusive fitness by increasing their siblings' reproductive success by in turn supporting their siblings' children (i.e. nieces/nephews). Previous studies support this supposition. Pollet and colleagues (2006), for example, showed that childless women in Belgium reported more contacts with their nieces and nephews than mothers did (see also Essock-Vitale & McGuire, 1985). Using historical data from the US, Pollet & Dunbar (2008) found that childless couples were more likely to take care of their nieces and nephews than couples with children were.

Another view indicates that childless women may have more time and resources than mothers have, since childless women do not have the occasion to invest in their own children (Pollet *et al.*, 2006). Thus, childless women may invest more than mothers in members of their kin, regardless of reproductive value. In contrast to this prediction, Pollet and colleagues (2006) found no difference between childless women and mothers in their contacts with aunts and uncles.

Using data from the Generational Transmissions in Finland (Gentrans) project, the present study analyses whether childless women give more support than mothers to their nieces, nephews, aunts and uncles in contemporary Finland. In the spring of 2012 Statistics Finland conducted a representative survey of young adults via mail. The survey reached 1753 individuals born between 1962 and 1990 (mean = 1976, SD = 5.6). The present study compares childless women and mothers. Only women with at least one niece or nephew 10 years old or younger were included, since childcare is rarely provided to older children. After these exclusions the study sample included 601 women (childless women: $n = 187$; mothers: $n = 414$).

In the case of siblings' children, the survey asked whether respondents had looked after their nieces/nephews in the last 12 months. In the questionnaire investment in nieces/nephews was gathered separately for four of the respondents' oldest siblings, and the niece/nephew sets of the specific sibling. In the case of aunts/uncles, the Gentrans survey asked whether respondents had provided practical help to their aunts/uncles in the last 12 months. The respondents may have had four types of aunts/uncles (i.e. maternal aunts, maternal uncles, paternal aunts and paternal uncles) and the questions concerned whether the respondents had provided support to at least one member of a group. For example, in the case of maternal aunts the questionnaire asked whether respondents had provided practical help to any maternal aunt.

Separate analyses for nieces/nephews (phase 1) and aunts/uncles (phase 2) were conducted. For this purpose the datasets were reshaped for a long format so that the observations were those of the original respondents' niece/nephew sets (phase 1) and aunt/uncle groups (phase 2). Since the data were clustered, Stata's statistical software cluster option was used to calculate standard errors. Logistic regression was used to predict the kin investment. The results were determined by calculating the predicted probabilities of kin investment from the logistic regression models.

Since childless women and mothers may differ from each other, e.g. based on level of education and sociability (Abma & Martinez, 2006; Jokela *et al.*, 2011), and previous studies show that not all individuals invest equally in their kin (Michalski & Euler, 2008; Pollet & Hoben, 2011), the present analysis controlled for several factors: respondent's birth year, education, partnership status, number of close relatives and lineage. In the case of nieces/nephews, the geographical distance to the niece/nephew set was also

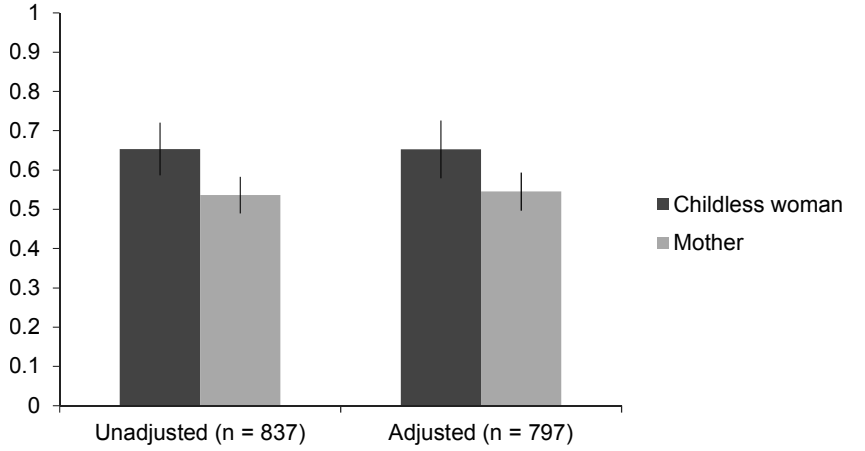

Fig. 1. Women's investment in nieces/nephews (predicted probabilities and 95% confidence intervals).

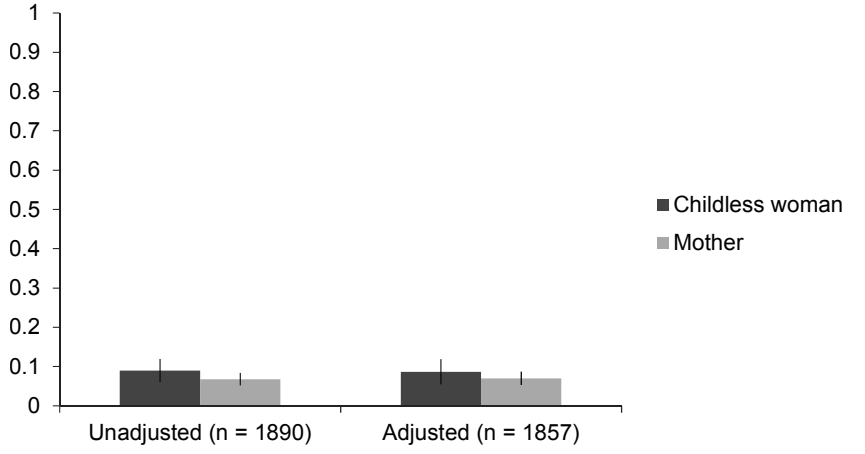

Fig. 2. Women's investment in aunts/uncles (predicted probabilities and 95% confidence intervals).

controlled for. Unfortunately, in the case of aunts/uncles the Gentrans survey did not collect information concerning this geographical distance.

Figure 1 shows that childless women have a greater probability of investing in their nieces/nephews than mothers (adjusted model: OR = 0.62, SE = 0.14, $p = 0.029$) ($-2LL = 1032.9$; $\chi^2 = 39.4$, df = 9, $p < 0.0001$; Nagelkerke's $R^2 = 0.086$). Figure 2 shows no significant difference between childless women and mothers in their probability of investing in aunts/uncles (adjusted model: OR = 0.79, SE = 0.21, $p = 0.388$) ($-2LL = 962.0$; $\chi^2 = 20.5$, df = 8, $p = 0.009$; Nagelkerke's $R^2 = 0.040$). In addition, those with more close relatives have greater odds of investing in their nieces/nephews

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Table 1. Predicting investment in nieces/nephews and aunts/uncles: results from two logistic regression models (odds ratios and 95% confidence intervals), Finland 2012

	Childcare of niece/nephew		Practical help to aunt/uncle	
	OR	95% CI	OR	95% CI
Parenthood status				
Childless woman (Ref.)	1.00		1.00	
Mother	0.62*	0.41–0.95	0.79	0.47–1.34
Birth year	0.998	0.97–1.03	1.001	0.97–1.04
Educational level				
Primary or lower secondary (Ref.)	1.00		1.00	
Upper secondary	0.93	0.53–1.63	1.48	0.75–2.89
Tertiary: lower degree	1.47	0.54–2.75	1.17	0.53–2.55
Tertiary: higher degree or doctorate	1.47	0.54–4.02	1.99	0.57–6.99
Partnership status				
No spouse (Ref.)	1.00		1.00	
Have a spouse	0.71	0.46–1.11	0.72	0.43–1.21
Number of close relatives	1.11*	1.04–1.17	1.16*	1.08–1.24
Niece/nephew via sister or brother				
Via sister (Ref.)	1.00			
Via brother	0.56*	0.42–0.75		
Distance to niece/nephew	0.9996	1.00–1.00		
Maternal or paternal aunt/uncle				
Maternal (Ref.)			1.00	
Paternal			0.84	0.59–1.18
n	797		1857	

*$p < 0.05$.

and aunts/uncles. Respondents are more likely to invest in their nieces/nephews via sisters than brothers (Table 1).

To conclude, childless women tend to invest more than mothers in their nieces and nephews but not their aunts and uncles. The results are in line with the reproductive value prediction (Hughes, 1988) and a previous study by Pollet and colleagues (2006). The present study has certain limitations that highlight the importance of future research. First, due to the data limitations it was impossible to separate voluntary from involuntary childless women. However, it remains important to study whether voluntary and involuntary childless women differ from each other in the case of kin support. Second, future studies should also investigate whether those who have supported their nieces/nephews receive more support from them in their old age. Third, there is room for studies concerning the outcome of kin support.

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