

Helpers at the Nest

Avian Cooperative Breeding
and Human Alloparenting or
Communal Breeding



Helpers at the nest

- In many avian species newly fledged individuals are unable to disperse into new territories.
 - May be a consequence of poor competitive abilities or
 - Lack of feeding territories or other factors
- As a result they stay with their parents and help them raise their younger siblings

Helpers at the Nest in Humans

- Humans appear to engage in cooperative breeding in that co-resident helpers assist the mothers and fathers of offspring in provisioning or direct or indirect care of their offspring.
- If this common pattern of behavior is **adaptive** then helpers should have the following effects on their siblings and mothers
 - Increase mother's fertility, increase child survivorship, enhance siblings' growth, and lower morbidity.
 - While we have numerous studies on the demographic consequences of helpers we have few studies on what mechanisms are at work (are helpers providing more food, childcare, or labor?)
- Helpers are related to the mother and appear to be restricted to
 - Daughters
 - Mothers
 - Sisters
- Aside from fathers, males appear to play no significant role

Initial Study: Turke and Betzig on Ifaluk

- **Helpers as Daughters**
- Turke and Betzig show that mothers with first born daughters
 - Had higher fertility than mothers with first born sons
 - The most fertile women were those whose first and second-borns were girls while women with the lowest fertility had first and second-borns as boys
 - Women who bore and girl then a boy had higher fertility than women who a boy then a girl

Mechanisms on Ifaluk

- It is not clear but it appears that girls are more economically useful to the family because
 - They work more than boys
 - They stay in their natal households longer because of a matrilineal residence rule
 - The food that girls produce is for household consumption but boy food production (fish) is distributed to other households

Other Studies: helpers as daughters or mothers

- Flinn in Dominica
 - Could not replicate Ifaluk findings on boy-girl birth order and RS
 - However, he found
 - mothers who had co-resident but non-reproductive females (pre or post menopausal) in their household had higher RS;
 - females with co-resident daughters ceased reproduction earlier;
 - daughters never became pregnant while living with mothers until mothers ceased reproduction; and
 - daughters showed delayed reproduction when they were living with needy siblings.

Other studies: helpers as daughters

- Berezkei's study of Gypsies in Hungary found the following
 - first born girls remained at home longer than first born sons or second born daughters
 - women with first born daughters had shorter birth intervals, a longer reproductive span, and higher fertility; and
 - time allocation data reveals that the mechanism for this reproductive enhancement is found in the greater amount of helping activity such as housework and childcare engaged in by daughters

The following studies show that grandmothers positively impact the survivorship of grandchildren and/or the fertility of their daughters

- Finland (1702-1823)
- Cambridgeshire (1770-1861)
- Krummhörn, Germany (1720-1874)
- Rural Gambia (present day)
- Historic Japan 1671-1871
- Favorite German grandmothers
- Post-marital residence among Bengali women in India

Conclusion

- A number of studies show that a woman's daughters, mothers, and, occasionally, sisters enhance the survivorship of her children or increase her fertility
- The mechanisms appear to be providing extra food, doing work for the mother, or caring for her children
- This demonstrates what Hrdy calls communal breeding and is an example of kin selection