

Parenting Strategies in Modern and Emerging Economies

Introduction to the Special Issue

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Abstract Independent of ecology, subsistence strategy, social complexity, or other aspects of socioecology, the altricial nature of young humans requires mothers to have help raising their offspring. What seems to be context-dependent, however, is who the helpers are, how they invest, and what the impacts of that investment are. In a series of papers that focus on parental and alloparental investment across five populations, this special issue of *Human Nature* uses evolutionary theory to examine how socioecological context influences modes of direct parental investment among the boat-dwelling Shodagor of Bangladesh (Starkweather), modes of indirect paternal investment in the modern United States (Anderson), and the biological outcome of paternal investment for men in Jamaica (Gray et al.), as well as direct alloparental investment among village Bangladeshis (Perry) and indirect alloparental investment in breastfeeding practices in the United States (Cisco).

Keywords Parental investment · Alloparents · Evolutionary theory

Human life histories are characterized by long periods of juvenile dependency; although most primates are nutritionally independent from their mothers once they are weaned, human offspring require supplementation with food and other resources until sexual maturity or beyond (Kaplan et al. 2000). As a result, human mothers typically have to raise several dependent offspring at once, staggered in age from infancy to adolescence. Women may receive assistance from the children's fathers in raising

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offspring, but they also frequently receive additional help from alloparents—individuals other than the genetic parents who provide care for conspecific young (Wilson 1975). Because women in most ecologies cannot raise multiple offspring to adulthood without assistance from others, human reproduction has been characterized as a form of cooperative breeding (Hrdy 2009; Kramer 2010).

Investments in children by parents and alloparents is highly facultative, varying both across and within cultures (Gray and Anderson 2010; Kramer 2010). Maternal kin tend to be more highly involved with raising young children than paternal kin (Huber and Breedlove 2007), and fathers have generally minimal involvement in direct care of infants (though in some cultures, such as the Efe and the Aka, men are much more involved with babies, though still less so than mothers) (Kramer 2010). Men's contribution to children is often indirect, in the form of resources such as food that has been hunted or farmed, or the provision of shelter and protection (Scelza 2010). One review of child mortality in subsistence societies found that mothers were most important in influencing child survival, followed by maternal grandmothers; fathers' effect on survival was highly variable, and in many societies their impact was minimal (Sear and Mace 2008).

The patterning of investment in children will be influenced by the trade-offs experienced by the investing parties. Parents experience trade-offs between investing in somatic effort (investment in oneself) and reproductive effort (investment in one's offspring), with the latter further subdivided into mating effort and parental effort (Low 1978; Trivers 1972). Given that resources are limited, investment in existing offspring must be balanced against future reproductive opportunities and investment in subsequent offspring. Alloparents experience trade-offs between investing in their own children, thereby enhancing their reproductive fitness, or in the children of kin, enhancing their inclusive fitness (Hamilton 1964). For older kin, such as postmenopausal grandmothers, these trade-offs may favor investments in grandchildren, as future reproduction is unlikely (Peccei 2001). For younger parents and alloparents, decisions regarding energy allocation are more complex when prospects for future offspring are still abundant. These trade-offs may be particularly acute for men, who may be more likely than women to benefit from investing in quantity of offspring over quality—having more offspring, perhaps through multiple women, but investing less in each—because of biological sex differences in reproductive capacity (Trivers 1972). In cases where ecological and cultural circumstances impose monogamous mating and marriage, however, men typically have fewer children and invest more in them (Marlowe 2000). The unique ecological, social, and life history contexts of each set of parents, alloparents, and offspring mean the optimal solution to these trade-offs will be context-dependent.

In this special issue of *Human Nature*, we present papers that draw on a variety of perspectives to examine parenting strategies across our species. Some (Anderson 2017; Cisco 2017) focus on modern industrialized wage labor economies, in which alloparents may be hired for pay (such as daycare providers) or may be kin, and male care may take the form of financial or emotional support (particularly in the postpartum months, when new mothers are most likely not to work for pay). The other three papers focus on wage economies in various stages of transition. In Jamaica (Gray et al. 2017) and rural Bangladesh (Perry 2017), wage labor is important but many families survive on subsistence agriculture; the Shodagor (Starkweather 2017), a distinct subculture within Bangladesh, are engaged in the cash economy, but also in traditional labor and

subsistence fishing. We briefly summarize below our perspectives on how parents, and then alloparents, interact to raise offspring.

Parents

Maternal care is normative among mammals; internal gestation and postnatal lactation means that females necessarily commit to a fairly long period of at least minimal parental care. Males, in contrast, need not contribute any resources once conception has occurred, and in 95% of mammal species, male investment in offspring ends with insemination (Clutton-Brock 1991). Among humans, in contrast, male care is ubiquitous, though men's involvement with children, and the levels of investment they provide, vary both across and within cultures (Gray and Anderson 2010). Men typically have minimal involvement with infant care, but once the child is weaned and parental care becomes substitutable, men can play a larger role in direct care, as well as continued indirect care (such as provisioning).

The occurrence of biparental care, and the negotiation of parental responsibilities within the couple, suggests that each parent may adjust his or her level of investment in reaction to the expected investment from the other parent. The universal existence of a sexual division of labor, in which men and women typically perform different tasks, suggests that raising children may be more efficient when both men and women are involved, allowing the caregivers to engage in the task that are socially appropriate for their culture. Starkweather's paper in this issue examines parental cooperation among the Shodagor of Bangladesh, a seminomadic river-dwelling people among whom the men provide very high levels of direct care for children. It seems that the unique ecology of the Shodagor and a nuclear-family-focused economy results in most childcare being concentrated within the nuclear family and families dividing economic and childcare responsibilities in particular ways. Starkweather shows that a confluence of the age of a particular family, salient ecological variables, and the availability of alloparents best explains how Shodagor mothers and fathers divide their labor.

Biparental care can also lead to possible conflicts of interest among parents. Because women bear the costs of gestation and lactation, men can potentially defect, yet still receive fitness benefits if the child is raised successfully (Borgerhoff Mulder 1992; Maynard Smith 1977). Some men may take advantage of the expected investment by alloparents and reduce their investment in children, allowing others to pay the cost of raising the child. This is an example of the familiar collective action problem, in which cooperative activity is potentially beset by free-riders who can enjoy the benefit of the activity without paying the costs (Chase 1980). When parental care is viewed from this perspective, the question becomes, why do men help raise children at all? And how should women react when male investment is expected to be absent or low (Hill and Low 1992)? Anderson's contribution to this special issue examines these questions in the context of unmarried mothers in the United States. Women face lower paternal investment in their offspring when legal paternity is not established at birth (i.e., a father is not named on the birth certificate). Using data from U.S. birth certificates, Anderson finds that among unmarried parents, legal paternity is more likely to be established—a proxy for increased cooperation between parents—with higher socioeconomic status, better maternal health, and with low parity, singleton, or male births. Women may

respond to reduced investment by “cutting their losses” and investing less in the offspring themselves; thus, when paternity is not established, babies are more likely to be lower birthweight or premature and are less likely to be breastfed.

Although fatherhood has been studied at length (see review in Gray and Anderson 2010), there is still a great deal we do not understand about how fatherhood and its social context can influence men biologically. Gray et al.’s contribution to this special issue examines the testosterone level of Jamaican fathers and father figures. Previous studies have found that men involved in long-term partnerships and paternal care often have lower testosterone levels than those who are not (e.g., Gettler et al. 2011) and that interacting with potential mates may increase men’s testosterone levels (Flinn et al. 2012). In this exploratory study, Gray and colleagues look into how variations in Jamaican fathers’ relationship status and relationship quality are related to testosterone levels. Contrary to previous findings, neither relationship status nor measures of paternal attitudes and behavior are important predictors of men’s testosterone levels for this dataset. However, the quality of the relationship is a predictor, with men who experience poorer-quality relationships also showing higher levels of testosterone, thus indicating a need for further exploration into these issues.

Alloparents

Although several studies have examined the amount of time and resources that alloparents provide in terms of childcare (for a review see Kramer 2010), less is known about the interactive relationship between alloparents and parents, and how those interactions influence parental investment decisions. Two of the papers in this special issue address these questions.

Perry uses data from Bangladesh to examine how women in this patrilineal and patrilocal society maintain ties with their matrilineal kin after marriage and childbirth. She finds that, despite living closer to their mothers-in-law, women visit their mothers far more often. These social visits may be a strategy to maintain contact with important alloparents who will provide assistance with childcare, even in the face of social norms that emphasize the importance of a woman’s husband’s kin.

Lastly, Cisco’s paper in this special issue examines the patterning of breastfeeding among American women, and its relationship to the emotional and financial support women receive for breastfeeding. Her results suggest women receive the strongest support from their spouses and their own mothers, and the least from same-generation kin. Maternal kin tended to offer more support for breastfeeding than paternal kin, and one of the strongest predictors of longer breastfeeding duration was if the mother herself had been breastfed. These results suggest that women’s parental investment decisions are influenced by the support received by others.

References

- Anderson, K. G. (2017). Establishment of legal paternity in unmarried American women: trade-offs in male commitment to paternal investment. *Human Nature*, 28(2). doi:10.1007/s12110-017-9284-0.

- Borgerhoff Mulder, M. (1992). Reproductive decisions. In E. A. Smith & B. Winterhalder (Eds.), *Evolutionary ecology and human behavior* (pp. 339–374). New York: Aldine de Gruyter.
- Chase, I. D. (1980). Cooperative and noncooperative behavior in animals. *American Naturalist*, *115*, 827–857.
- Cisco, J. (2017). Who supports breastfeeding mothers? An investigation of kin investment in the U.S. *Human Nature*, *28*(2). doi:10.1007/s12110-017-9286-y.
- Clutton-Brock, T. (1991). *The evolution of parental care*. Princeton: Princeton University Press.
- Flinn, M. V., Ponzi, D., & Muehlenbein, M. P. (2012). Hormonal mechanisms for regulation of aggression in human coalitions. *Human Nature*, *23*(1), 68–88.
- Gettler, L. T., McDade, T. W., Feranil, A. B., & Kuzawa, C. W. (2011). Longitudinal evidence that fatherhood decreases testosterone in human males. *Proceedings of the National Academy of Sciences*, *108*(39), 16194–16199.
- Gray, P., & Anderson, K. G. (2010). *Fatherhood: evolution and human paternal behavior*. Cambridge: Harvard University Press.
- Gray, P. B., Reece, J., Coore-Desai, C., Dinall, T., Pellington, S., & Samms-Vaughan, M. (2017). Testosterone and Jamaican fathers: exploring links to relationship dynamics and paternal care. *Human Nature*, *28*(2). doi:10.1007/s12110-016-9283-6.
- Hamilton, W. D. (1964). The genetical evolution of social behavior, parts I and II. *Journal of Theoretical Biology*, *7*, 1–52.
- Hill, E. M., & Low, B. S. (1992). Contemporary abortion patterns: a life history approach. *Ethology and Sociobiology*, *13*, 35–48.
- Hrdy, S. B. (2009). *Mothers and others: the evolutionary origins of mutual understanding*. Cambridge: Harvard University Press.
- Huber, B. R., & Breedlove, W. L. (2007). Evolutionary theory, kinship, and childbirth in cross-cultural perspective. *Cross-Cultural Research*, *41*, 196–219.
- Kaplan, H., Hill, K., Lancaster, J. B., & Hurtado, A. M. (2000). A theory of human life history evolution: diet, intelligence, and longevity. *Evolutionary Anthropology*, *9*, 156–185.
- Kramer, K. L. (2010). Cooperative breeding and its significance to the demographic success of humans. *Annual Review of Anthropology*, *39*, 417–436.
- Low, B. S. (1978). Environmental uncertainty and the parental strategies of marsupials and placentals. *American Naturalist*, *112*, 197–213.
- Marlowe, F. (2000). Paternal investment and the human mating system. *Behavioural Processes*, *51*, 45–61.
- Maynard Smith, J. (1977). Parental investment: a prospective analysis. *Animal Behaviour*, *25*, 1–9.
- Peccei, J. S. (2001). Menopause: adaptation or epiphenomenon? *Evolutionary Anthropology*, *10*(2), 43–57.
- Perry, G. (2017). Going home: how mothers maintain natal family ties in a patrilineal society. *Human Nature*, *28*(2). doi:10.1007/s12110-016-9282-7.
- Scelza, B. A. (2010). Fathers' presence speeds the social and reproductive careers of sons. *Current Anthropology*, *51*, 295–303.
- Sear, R., & Mace, R. (2008). Who keeps children alive? A review of the effects of kin on child survival. *Evolution and Human Behavior*, *29*, 1–18.
- Starkweather, K. (2017). Shodagor family strategies: balancing work and family on the water. *Human Nature*, *28*(2). doi:10.1007/s12110-017-9285-z.
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man 1871–1971* (pp. 136–179). Chicago: Aldine.
- Wilson, E. O. (1975). *Sociobiology: the new synthesis*. Cambridge: The Belknap Press.

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