Indifferent Dads, Super Moms, and Overbearing Babysitters: Variation in Infant Care Among Primates

Primates exhibit a wide variety of infant care strategies. For example, in most primates childcare is supplied primarily by the mother, but in a few primates (like Barbary macaques) many individuals take care of children including unrelated males. Many ecological factors drive these different parenting styles. For example, the distribution and abundance of foods shapes the type of social groups primates form (Fuentes 1998), this in turn influences who helps to care for infants and juveniles. A comparison of several primate species allows us to examine how food, and social grouping patterns can shape primate childcare.

White-handed gibbons (*Hylobates lar*), which live in South and Southeast Asia, form two adult groups (also called social monogamy). The male gibbon does little to no infant care and the burden of childcare is the female’s sole responsibility. Instead of direct infant care, the male provides indirect care in the form of territorial defense (Brockelman 2009). Since the white-handed gibbon is mostly a frugivore, groups benefit by defending a territory which is rich in fruit trees. Thus, although we might expect males in pair-bonded groups to directly care for infants, the gibbons clearly benefit by dividing labor between the sexes (Reichard 2003).
Orangutans (*Pongo sp.*) are Asian great apes located southeast Asia (islands of Sumatra and Borneo). Dominant adult males are solitary, they have large home ranges which overlap with those of several females. Females live alone with their children (Rijksen, 1978; Mitani, 1989). Orangutans mothers exhibit intense maternal care: they wait 6-9 years before giving birth to another child. This is the longest interbirth interval of any non-human primate. Mothers provide transportation, food, protection and social company (play mate) for their children (Rijksen, 1978). Orangutans are weaned when they are 4 years old and receive continuous care until they are 8 years old. By 8-10 years old, the offspring will leave their mother but will often visit her and their younger sibling up to 11 years old (van Noordwijk et al., 2009). Southeast Asian forests are characterized by long and irregular periods between fruiting seasons (van Noordwijk and van Schaik 2005), thus immature orangutans use their long childhood to learn about food sources they can eat when fruits are scarce (van Adrichem et al., 2006). Thus, female orangutans produce few offspring during their lifetimes, but they invest heavily in each of their offspring as a means of increasing their children’s survival in an unpredictable environment (van Adrichem et al., 2006).

In contrast, the howler monkey (*Alouatta spp.*), invests much less in each of their offspring. Mothers provide intense care for their infants’ first few months, but by the time the infant reaches eleven months, it is almost fully weaned (Pave et al 2015). Fathers do not
contribute any direct care for their children. Males will tolerate infants and juveniles climbing on them, but they do not seek out these individuals for interactions (Bolin 1981). Given the males general indifference towards infants, it is noteworthy that occasionally a male will take care of an infant which has been abandoned by its mother, and females may also adopt abandoned infants (Agoramoorthy and Rudan, 1992). Surprisingly, infants may be kidnapped when neighboring groups meet (Agoramoorthy 1998). The lack of paternal involvement and limited maternal involvement makes these occurrences particularly interesting. In contrast to the spoiled orangutan children, howler monkeys must become independent much faster to survive into adulthood.

Savannah baboon mothers are the primary caregivers of infants: mothers will carry the child on her chest or back for the first six to seven months of its’ life. Yellow baboons (Papio cynocephalus) live in central Africa and travel many kilometers in search of food: in this habitat, it is more cost effective for the mother to carry her infant for 7 months than it would be to provide the infant with enough milk for it to travel on its own (Lycett, 1998). In harem groups where there are multiple nursing mothers and only one breeding male, infants become independent faster than infants in multi-male multi-female group (Young, 1979). This is likely due to lower aggression rates within the uni-male groups allowing mothers to be less cautious with their infants. Additionally, if mothers in uni-male groups face less feeding competition, they can provide infants more nutrients to accelerate their independence than mothers in multi-male groups.
In other primates, both mothers and fathers can play essential roles in the development of offspring. For example, in mountain gorilla groups (*Gorilla beringei*) in east Africa, males help protect their infants from aggression by roaming bachelor males aspiring to take over the breeding position in a group. Females in single-male groups tend to wean their young more quickly than in multi-male groups, likely as a strategy to shorten the time that the infants are vulnerable to male attacks (Eckardt et al., 2016). Female mountain gorillas preferentially join multi-male groups likely because there is less risk that a new male will attempt to take over these larger groups than a group controlled by a single male (Yamagiwa et al., 2003). Interestingly, males in multi-male groups are more involved with infants than males in uni-male groups, even when they may not be the father of those infants (Rosenbaum et al., 2018).
Barbary macaques (*Macaca sylvanus*) live in large, multimale/multifemale groups in northern Africa and Gibraltar on the Iberian Peninsula of Europe. Females stay in the group they are born in, whereas males who become sexually mature must leave their natal group and join a new one. Barbary macaque males will care for infants who are not their relatives: they groom, carry, protect and play with these infants (Kümmerli and Martin, 2008). Males interact with infants as much as their mothers, and male interest in caregiving begins a few hours after an infant’s birth (Paul et al., 1996:155). Males will use infants as a way of bonding with other males in the group. After two males fight, the loser will borrow a baby from a mother and take it to the winner. Both males will then examine the baby together, poking and prodding at it and chattering to each other. Once both males have finished bonding, the infant goes back to its mother (Kümmerli and Martin, 2008).
The above examples show that a wide range of factors influence which individuals engage in infant care, what care they provide, and how often they provide it, these care givers include indifferent dads, super moms and overbearing babysitters.

**Bibliography**


