

Infant and juvenile behaviour adaptations across primates



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Infant and Juvenile behaviour adaptations across primates found within wild habitats and within tourism.

Abstract:

Tool-use and social play is commonly found within primates for developing skills for their adult life such as calls and gathering materials and food. This is all overseen by a hierarchy within primates that are known as group-living primates, with both dominant and subordinate opinions within the hierarchy. Dominant hierarchies oversee the behaviour of both juvenile and adult primates and keep the behaviour within the group balanced. Juvenile primates that are found within tourist areas and captivity follow the structure of a hierarchy however, unlike wild primates their skills develop differently. Wild primates are found to use tool-use and develop skills to assist the group of primates, whereas those found in captivity tend to conduct more social play and gain a deceptive skill. Evolution and development within both groups show that the interaction with their surrounding helps shape the way the brain within infant and juvenile primates develop. Due to sterilisation and contraception within captive situations, there is a spread of mental illnesses amongst the group, and therefore are required to be monitored for overall behaviour of the group. There was also an increase in paternal kin selection with primates in captivity due to contraception of the group to limit group-sizing. The way in which primates are raised affects the habitat surrounding the group and therefore there will be an adaptation in dietary needs, and predatory attraction as well as adapting different calls within the group, this is not common in primates that have been raised within captivity, due to the social play conducted within captivity over tool-use.

Introduction:

Juvenile primate behaviour within wild habitats has been something that has been researched, however there is little evidence of the behaviour within captivity and tourist attractions. When researching into the behaviour of juveniles and infant primates, it is important to look at the habitat in which the species are living and the type of society the primates grow within. This ranges from group-living species to solitary and neighbouring species however the focus will be group-living species, both captivity and wild situations as this all has an affect on the development of the social grouping.

The aspect of diverse behaviour is focused on mating patterns, grouping and spacing from other groups (Kappeler & van Schaik, 2002). Group-living species generally maintain a balance of males and females, however male dominating and female dominating groups are not unusual. Depending on hierarchy of the group and the dominating gender has a high impact on how juveniles are raised. Care within group primates is generally formed of Carrying, grooming, agnostic interactions and protection (Berman, et al., 2007).

Males and females are known to care for young juveniles and infants that are both kin and non-kin, and there is beneficial behaviour towards kin where as there is detrimental behaviour toward those that are non-kin. kin selection would take place whenever the inclusive benefits of the selection outweighs the cost (Smith, et al., 2003) and therefore primates would adopt and care for another infant. There have been some situations where primates are knowns to discriminate between non-kin and paternal kin juveniles. This

shows that primates are aware of their relatives and therefore also means that primates can recognise both maternal and paternal kin (Silk, 2002).

Most mammals and birds, including primates return to their breeding sites or groups on an annual basis. Primates are found to remain in their breeding groups or return to their breeding ground where they will interact with primates from other groups (Greenwood, 1980). When primates return to a breeding site, this allows for the enhancement of breeding through the increase of access to more males and females. This type of breeding also limits the possibilities of inbreeding and offers the possibility of group-living sizes to increase or decrease. Due to the length of time the breeding site is used, there is also a higher abundance of materials and food for the primates preparing for breeding.

It is important to understand the behaviour and ecology of primates within captivity. Primates within captivity are found to be at higher risk of mental illnesses within the hierarchy and group of primates, this could be due to a collection of reasons, and therefore primates within captivity are closely monitored and studied. Research and understanding of primates within captivity is to ensure their welfare, basic research within primatology and to ensure a positive experience for tourism (Hosey, 2005). For captive primates it is important to understand that cage size has an affect on how active the primate grouping would be, and therefore it is important for the cage size and complexity (Kitchen & Martin, 1996) to be considered when taking in primates especially juvenile and infant primates, as this would limit the activities juveniles might undertake in the wild. To limit the size of

primate groups within zoos and other captive situations, sterilisation or <https://assignbuster.com/infant-and-juvenile-behaviour-adaptions-across-primates/>

contraception may be undertaken on primates to reduce the number of infant primates within the group (Plowman, et al., 2005), this also has an affect on the mental state of both male and female primates. contraception and sterilisation may also affect the kinship of groups and therefore, male and females may collaborate in raising juveniles and infants in paternal kinship, as they are unable to produce kin themselves.

Interactions between tourism and primate habitats hold similar affects on the mental state of group-living or paired-living primates. Although primates such as *Macaca Sylvanus* have adapted to the regular attention from tourists (O'Leary & Fa, 1993), but this also limits their tool-use skills and therefore deceptive skills may replace tool-use. As tool-use is found commonly within primates there is a stronger correlation of tool-use over social play within wild species of primates, where as primates found within captivity and common tourism sites, there is more social play which develops the deceptive side within juvenile primates leading to thieving and scavenging rather than utilising the habitats surrounding them.

Living orientation for primates.

Majority of primate species are found to live in groups with a few species that are solitary, this is the most basic form of characterisation for primates. This is based on the social organisation of primate grouping and the organisation of socialising alone (Kappeler & van Schaik, 2002). When looking at the way the primate grouping is based in Kappeler & van Schaik (2002), we can break down the characterisation into three groups of social

organisations which are then distinguished into paired-living species, solitary and neighbouring species and group-living species.

There are pros and cons to each primate living behaviours, such as Primate groups tend to grow to the size of there surrounding habitats and the resources available within the area. The bigger the surrounding habitat the better food resources which was found in a study conducted by Milton & May (1976). When primates live within groups, it allows for a larger habitat exploitation and therefore, group living primates would be found to be larger. However, primate that live in groups are larger targets for predators, where as those living in solitary would be less appealing to predation, but there living habitats would reduce the amount of food and resources available to them.

Living in groups provides some pros and cons regarding the survival of the species such as competition on mating and food. Costs and benefits within a group of primates is dependant on the size of the group, two of the main factors in group sizing is food abundance and predation (Majolo, et al., 2008). The larger the group the larger food abundance needs to be, however, it is less likely that a predator would attack a large group. When looking at a smaller group, there would be a better access to food but there is a higher chance of predators attacking. This also affects the way energy is used within group species, as within a smaller group, there would be less needing to forage for more food, therefore resulting in less energy for food resources but with higher energy being put into predation watch and it would be the opposite within larger groups of primates.

Paired-living primates tend to follow a group way of living with where they are more prone to being attacked by predation, however there is less energy going into resource hunting. Although smaller groups and paired living species of primates would be less conspicuous due to primate size and size of the group but there would be a higher struggle when spotted by a predator. Feeding patterns depends on the diet that the primates live on such as insectivores, folivores, frugivores or a combination of those. Diets are resource dependant and therefore when paired-living, the diets may change depending on the resources available, allowing for the best environment exploitation (Garber, 1987).

Solitary primates or neighbouring primates tend to be nocturnal, with a few exceptions to the rule. Although they are known as solitary, these primates like to stay connected and social with each other, this can be an interpretation of warning calls when a predator is within the perimeter of the neighbouring colony Majority of solitary species are found to be polygynous, and therefore lack sexual dimorphism (Kappeler, 1997). Primates such as *Mirzacoquereli* were found to have larger males than females, supporting sexual dimorphism, however, female dominated societies within neighbouring species was commonly found within Kappeler's (1997) study. Mating within solitary species are seasonal with male-male competition present and primary but not exclusive. Solitary primates' diets are influenced on the habitat around them, which reflects positively on the body size of the primates (Milton & May, 1976).

Wild Primates Behaviour:

Many species of primates are found to return to their breeding grounds, and this can sometimes be the site in which group-living primates are found to stay throughout the year. Faithfulness to a site has been well documented over the years for primates and other mammals and birds (Greenwood, 1980). With primates that return to a breeding ground or use it as a location for group-settlement, with commitment to a breeding ground throughout the years, juvenile primates would follow the behaviour of their parents and therefore would also breed within the breeding ground. With breeding ground faithfulness from wild primates, the breeding process is simpler. Group living primates would use the breeding ground to also raise their young depending on the resources available to the group within the area.

Juvenile primates that grow up within group-living and paired-living societies would develop their behaviour through the teachings of their parents as well as the group where generally the females would look after infants and juvenile primates. Male parental care is known to be very rare within the raising of young juveniles within mammals, however, male primates have been known to provide care for infants and juveniles (Buchan, et al., 2003). Infant and juvenile care produced by male primates are more likely in a male dominated group, however, it is not unknown for male primates to assist with juvenile care in a balanced male-female group society.

Dominance hierarchy within primate groups is a useful insight into the social behaviour and the social interactions between group members (Richards, 1974), as the hierarchy controls the whole group's behaviour and gathering, therefore this would impact the way in which a juvenile primate between the ages of 3-5 would learn to assist the group with foraging or predation watch. <https://assignbuster.com/infant-and-juvenile-behaviour-adaptions-across-primates/>

Therefore, there would be a limit on the amount of social play found within wild species of primates and this would be replaced with tool-use such as learning the multi-functional to communicate with the group and warning of predation (Fichtel & Kappeler, 2002). Strict hierarchy within primates is still present within baboon and macaque species, and although strict hierarchy is still, present this is mostly for stability within the social groups, as the hierarchy requires certain behavioural patterns from members of the group (Price, 1967), this affects the members of the group who do not abide by the hierarchy with banishment and sometimes death from the group. The process of the hierarchy within baboons and macaques has reached an equilibrium for social behaviour when the advantages and disadvantages of behaviour within the group balanced out, and therefore setting the guidelines to young juveniles within the group, as well as the adults.

Captive primates' behaviour:

The conditions of captivity of primates has an affect in which the primates social behaviour changes, such as those found with zoos, where they are free roaming and those used for medical research and cage space is limited, it has been found in Kitchen & Martin's (1996) study that the bigger the space in which primates roam, the more active and those primates were found to be.

When primates are held in captivity, depending on the age of the primates such as juveniles or adults will affect the social and general behaviour developed within the primate group. Behaviour that is exhibited within zoos and other captive environments are important as it helps understand the

welfare of the primates and understanding that there is a positive experience for both the primate and the visitors (Hosey, 2005). If a primate is past the juvenile stage when brought into captivity, the primate should still show behaviours to those outside of captivity, and this could still be passed down as knowledge to infants and juveniles within captivity. Behaviour of primates in captivity is not always simple to interpret due to the change of ecology and environment compared to wild primates as mentioned in Hosey's (2005) study.

Captivity affects the way in which juvenile primates grow into adults, this could be due to the lack of predation within the location as well as the ecology of the cage in which the primates stay. Without the use of foraging for food, and predation alerts, tool use within captive primates dies out and therefore, exhibit more social play with other young primates. Hamilton (1964) proposed a theory in kin selection to which states that the way a primate treat kin is different from non-kin primates, which offers difficulty to primates newly introduced to a group society within captivity, with the fear of the group rejecting the non-kin juvenile or infant primate however this isn't always the case with captive primates (Eshel & Motro, 1981).

Contraception within captivity such as zoos is common, and this can have an affect on which primates respond to mating. The reason for this is due to over-population within zoos and management of group-living primates. However, this can change the behaviour and the psycho-social affects within the group from female primates, especially within baboon in captivity (Plowman, et al., 2005). This could cause mass mental illness within the

primate species (Price, 1967) and can in turn affect the hierarchy and the whole behaviour of juveniles within female dominated groups.

Tourism within primate's habitats:

Although tourism is a global industry with the potential to help with conservation of species, there is evidence that this can have an affect on primates such as behaviour, health issues, population and reproduction within the primates (Maréchal, et al., 2011). With the stress from tourism impacting primate groups and individuals, will also impact the behaviour of infants and juveniles, through the stress of their parents, and this could lead to mental health problems throughout the juvenile's adult life leading to infertility and other health problems.

Tourism and human interaction with primates are something that must be monitored in some countries across Asia especially towards endangered species habitats (Ruesto, et al., 2010). With tourism being big for primate habitats in places such as China, there is potential stresses that could occur within the primates and this has a massive impact on the population of primates. Although there is always an element of risk when tourism closely interacts with primates, there is also some succession with some species such as *Macaca Sylvanus* (Fa, 1992).

Tool use is also limited where tourism is involved due to there being more social play between primates and juvenile primates. Juvenile Primates behaviour to scavenge food and other resources though social play and deception instead of using the habitat surrounding the area. With adult primates being exposed to tourism, there is an increase of aggression from <https://assignbuster.com/infant-and-juvenile-behaviour-adaptions-across-primates/>

the adults. The increased ingestion has a correlation with factors that may harm the juvenile or infant primates (Berman, et al., 2007).

Conclusion:

Primates along with other animals have evolved to detect and process a set of specific stimuli that's found within their environments (Ghazanfar & Santos, 2004). The stimuli that is specific to the environments also change the behaviour responses within the primates, however with primates there is socialised dominance to help maintain a hierarchy and maintain control within the primate group. With this stimulus, primates can adapt to their surrounding and developing calls for different situations.

The arrangement of social grouping within primates are dependant on the hierarchy. When there is a dominant hierarchy primate can control social groups and behaviour patterns that are demonstrated by both juvenile and adult primates. The dominant hierarchy within primates are maintained through actions delivered by both subordinate and dominant primates (Deag, 1977) suggesting that they can be found to occur naturally within group-living societies both in captivity and wild species of primates.

The behaviour of juvenile primates is generally depending on the dominant hierarchy within primate groups. Group sizing affects the time budget and frequencies of social behaviour within different primate species like the *Macaca fascicularis* which shows a behavioural mechanism known as the "pushing forward" affect (van Schaik, et al., 1983) when moving locations such as moving towards the breeding grounds as primates are known to be faithful towards to breeding grounds, similar to most mammals and birds.

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Social play within wild juvenile primates helps with bonding between the group-living species. Males primates tend to play more within the wild and played rougher than that their female counterparts (Owens, 1975). Males are also found to take part in more active activities than what females did. However, both male and female juveniles take part in more active activities with age, this sort of activities are also used for tool-use rather than deception. Primates that were found to grow up within captive situations and those that encountered tourism are found to play socially for longer periods and until later ages. Primates which encounter human contact therefore tend to be more deceptive and lack tool skills within their habitat.

Overall, juvenile primates' captive or wild all follow the rules of the dominant hierarchy and therefore their behaviour is adjusted to fit within the social group. Dominant ranking is also used to determine which males within the social group get to mate first, this has the chance to cause an upraise within the hierarchy. Where males sometimes contribute to the raising of kin primates, they are treated differently to those who are non-kin and can cause aggression within the group-living society due to potential danger to infants. Juvenile primates that are raised in group-living habitats, would therefore show different behavioural teaching to those raised where tourism is present, due to the nature of the environment around them each showing unique skills to help adapt to the environment around them.

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