

Social Behaviour In Bonnet Macaque (*Macaca Radiata*) With Reference To Grooming

Dileep.K¹ and Bobby Jose²

¹ St.Michael's Girls HSS, West Hill, Calicut, Kerala 673005 ,India

² Department of Zoology, St. Joseph's college Devagiri 'Calicut, Kerala 673008, India

Abstract

Social behaviour varies widely between species sharing the same ecological niche. The social behavior of *Macaca radiata* with reference to grooming was studied in a sacred grove. Grooming is a frequent activity seen among social primates. The frequency of involvement and proportionate participation in grooming have been related to social status. Even though all the groups involved in grooming the subordinates take active role. Grooming promotes group cohesion and it is a way of expressing social relationship.

Keywords: Grooming, Group cohesion, *Macaca radiata*, Sacred grove.

1. Introduction

Primate societies are generally structured organizations with fairly clear social rules that determine patterns of interactions between different classes of individuals comprising these societies. Kinship and dominance rank, for example are important factors regulating with in group co operation and competition among individuals in typical cercopithecine societies including that of monkeys. (Smuts, B.Cheney D.L, Seyfarth R.M, Wrangham R.W. and Struhsaker 1987). The genus *Macaca*, the Asian representative of cercopithecine monkeys, is the most widely distributed of any non-human primate. Macaques range from East Afghanistan, Pakistan, India and Sri Lanka in the west to Japan, East China, Taiwan and South East Asia in the East (Hill 1970), (Napier and Napier 1967, Roonwal, Mohnot 1977).

The evolutionary diversification of the genus *Macaca* has yielded 19 extant species (Fooden 1980) occupying ranges in North West Africa and across South and Eastern Asia. One of the most extensive steps in primate evolutionary history has occurred only over the past 5 million years (Delson 1980).

Macaca radiata is occurring in peninsular India in villages and jungles both in hills and plains. It is a highly adaptive species. They are very social and live in highly organized troop of both sexes of all ages in well defined territories. Dominance hierarchy is clearly visible.

The social behavior of *Macaca radiata* was studied giving preference to grooming. Social behaviour varies widely between species sharing the same ecological niche, challenging the view that interspecific differences are closely related to ecological variation (Struhsaker 1969, Clutton-Brock 1974, Altmann 1974, Wilson 1975, Terborgh and Janson 1986).

The study was conducted in a sacred grove, near to Calicut, which is an evergreen patch. (11° 30' - 45' lat and 75° 40' - 50' E long) It covers over 9.75 acres of land. There is a lake in it extending through out its length, which is connected, to a main river. The study area is covered with tall tree and lianas, stratification is clearly seen. It gets heavy rainfall. The area is undisturbed, as people are not allowed to enter the site without permission.

2. Methodology

The method employed was based on direct observation. A 8x40 binocular was used for observation. The observation was done for 30 minutes, which was called sample period. Between sample period 30 minutes interval was there. The observation was done from morning to noon or from noon to evening; some times observation was done for the whole day itself. The study was conducted during 3 seasons, summer (February, March, April) monsoon (June, July) and post monsoon (November, December, January) Four categories of monkeys were identified. Since the dominance hierarchy and lineage of the monkeys were not clearly known, the criteria used in determining an individual's age/sex class are also given. Neonates were also seen during the study

Adult Male: Any male that was morphologically bigger than an adult female by at least one third.

Adult Female: Any female that was carrying a neonate, pregnant or swollen.

Sub adult: Any male that was morphologically similar to an adult female or any female that was bigger than a juvenile but smaller than an adult female.

Juvenile: Any member that was independent of its mother, fed alone and indulged in playing.

3.Result

Macaca radiata spent a considerable time for grooming. Allogrooming and auto grooming is seen in them. Here observation and study is done in Allogrooming. Allogrooming refers to the manipulation of the fur and skin of an individual by another with the fingers, mouth or teeth in order to remove bits of dirt, dead skin, ectoparasite or dried blood from wounds. Generally *Macaca radiata* showed grooming behavior after feeding or playing. It was seen that time spend on grooming was more during summer season and the time spend for each grooming also varied. Grooming lasted for a few seconds to several minutes (Table.3). Maximum time observed was 30 minutes and it was during summer season. Generally the maximum frequency is between 30 seconds to 10 minutes.

Macaca radiata groomed all parts of the body. Depending upon the area groomed the body of animals is divided into five regions. Head and neck region, back side, ventral side, anal and tail region and whole body itself. It was seen that ventral side was groomed the least (4.5%) head and neck region was groomed the most (Table.1). (Fig.1). It was seen that during grooming both partners showed maximum co-operation and presented the body part to be groomed to the partner. Even without presenting also they groomed one another. All the four classes were engaged in grooming. It was seen that the subordinates are engaged more in grooming than the mature adult forms (Table.2).

Table-1: Frequency and percentage of body parts groomed

Parts groomed	Number of observations	Percentage
Head and neck region	40	36.03
Back region	33	29.72
Ventral side	5	4.5
Anal region and tail	17	15.31
Whole body	16	14.41
Total	111	100

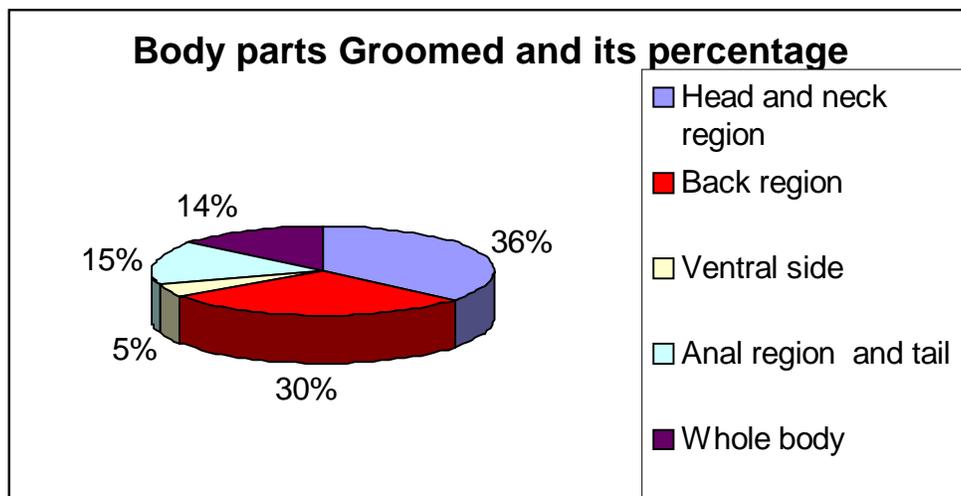


Figure-1: Body parts groomed and its percentage

Table-2: Grooming among different classes of *Macaca radiata*

Participants	Number of observations	Percentage
Adult - Adult	15	15.31
Adult- Sub adult	20	18
Adult - Juvenile	6	5.4
Sub Adult – Sub adult	33	29.72
Sub Adult – Juvenile	23	20.72
Juvenile – Juvenile	14	12.61
Total	111	100

Table-3: Time spend by *Macaca radiata* for grooming and it's percentage

Time spend for grooming	Number of observations	Percentage
<30 seconds	9	8.1
30sec – 1 minute	16	14.41
1-5 minutes	28	25.22
5-10 minutes	31	27.92
10-15 minutes	14	12.61
15-20 minutes	7	6.3
20 -25 minutes	4	3.6
25-30 minutes	2	1.8
Total	111	100

4. Discussion

Changes in social structure in response to ecological parameters have often been observed in different animal societies. (Lott 1984) Although most of these species usually have an evolutionary selected basic pattern of social organization, intra specific variations do arise in response to fluctuation in the local environment. Allogrooming is a frequent activity seen among social primates (Marker 1965, Sparkes 1967, Jolly 1972). The frequency of involvement and proportionate participation in grooming have been found to be related to social status in a number of cases (Hall and Devore 1965, Hall 1967, Kaufmann 1967). In primates the subordinates usually take active role. Allo grooming can be considered as a factor in promoting group cohesion as well as means of expressing social relationship.

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