



A NON-PUNISHING WEANING STRATEGY EXHIBITED BY BONNET MACAQUE

(*Macaca radiata*)

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ABSTRACT: Weaning is one of the important aspects of mother-infant relationships. Studies reporting maternal investment or mother-infant relationships often take suckling frequency as a proxy for breastfeeding and active rejection by the mother as weaning. In non-human primates and mammals, this active rejection is marked by mother punishing, biting or threatening infant on initiating nipple contact or while breastfeeding. Here, the researcher reports a non-punishing strategy employed by mothers in a group of bonnet macaque inhabiting a relatively safe area.

Key words: Weaning, mother-infant, and bonnet macaque

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Weaning is a well-established milestone reported in most of the studies of mother-infant relationships across many species of mammals. However, most of the studies define weaning as active rejection or punishment [1, 2, & 3] on initiating nipple contact. Here, the researcher reports a different strategy of weaning adopted by mothers in a group of bonnet macaque (*Macaca radiata*) inhabiting roadsides of Utaranhalli village, Mysore, Karnataka (12°14'53.22"N; 76°40'51.95" E). This study was purely an observational study and it has followed all the ethical guidelines put forward by the government of India and University of Mysore, Mysuru. The group was followed and studied from November 2011 to April 2013. The area inhabited a group of 62 bonnet macaques at the beginning of the study. There were 17 females in the group. Fifteen females had delivered infants in the first breeding season. Out of these 15 infants, two infants died leaving 13 mother-infant pair.

In this group, the females adopted a non-punishing strategy to wean infants. The mothers used to leave their infant in the area where most members of the group spend most of the time. Some mothers did not return to the infants for the entire day, while some mothers did not return for almost 2-3 days. In extreme cases the investigator observed that some females did not return for almost a week.

The group inhabited the area where an individual household sheltered the group and was provisioning the group three times per day. The household was providing a relatively safe environment for the macaques. The sleeping site of the group was located in a coconut grove near to the household. The group used to come to this house every day early in the morning and then spend most of the time either at the house or in the neighbouring areas. The house was surrounded by gardens of mango, sapota, ragi, coconut, etc. A large open space partitioned the house sheltering these macaques and the major fields of mango, sapota, etc. which was difficult for an infant to cross without mothers support. The females used to leave the infant with rest of the group and used to spend its whole day away from the infant for few days to a week. The investigator followed such infants for several complete days.

Their mothers never return to the infant for the entire day even once a day. Rather, the infant whose mother was feeding and resting in other areas often spent their time with other females of the group. In most instances, primiparous or young mothers used to take care of these infants. After a week or few days, the mother used to come back and again carry the infant as usual. However, the bouts of suckle were observed till the time of next infant birth. Five to six females exhibited such pattern of non-punishing weaning though only one female showed such pattern at a time. To substantiate the observation, investigator attempted to infer patterns in the data collected using scan sampling at every half an hour and analysed at 30 days interval. The total duration of punishment behavior was only 1.18% of the overall behavior of all the females. A total of 7,777 scans were taken. For providing evidence of such separation for weaning, the data on suckling frequencies and distance of the four females, who exhibited such behaviour was analysed. All frequencies were converted to percentage before analysis. The distance was divided into three categories. (i) Zero body contact (mothers carrying the infants or immature playing over mothers), (ii) 1-5 meter (when the infant was at a distance between 1 to 5m from the mother), and (iii) M5 meter (when the infant was at a distance more than 5 meters from the mother). Suckling frequencies together with M5 meter distance provides estimation about non-punishing weaning. All four females exhibited a peak at or near seven months from the birth of the infant in the distance at more than five meters indicating a period of separation. At the same time of this peak, there is a fall in suckling frequencies (measured as a number of times an infant-initiated nipple contact) and zero distance. This peak in the distance and fall in suckling frequency indicates a separation without nipple contact, which can be inferred as the period of weaning (Figure 1).

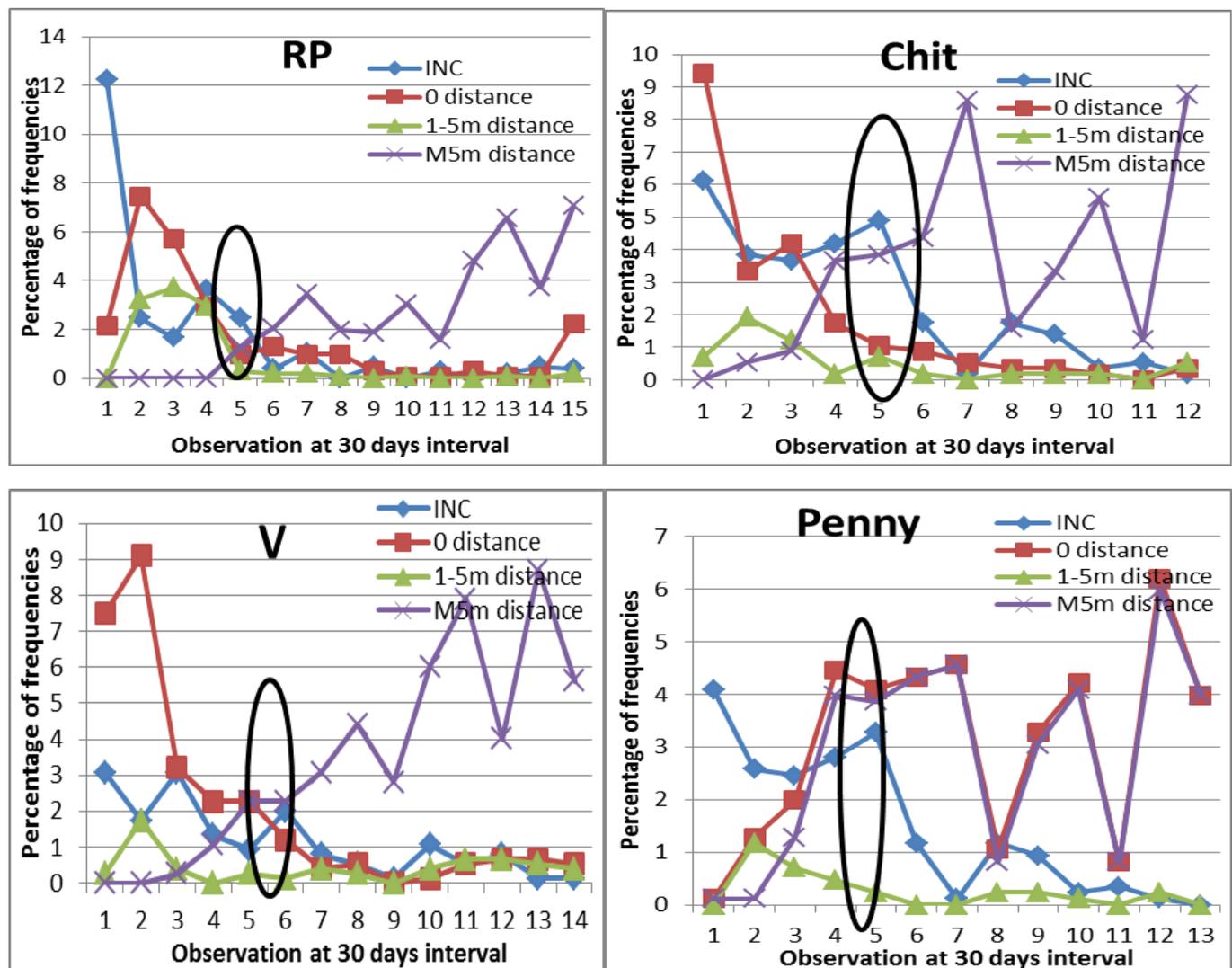


Figure-1: Percentage of frequencies of initiating nipple contact (INC), and the distance between mother (RP, Chit, V and Penny), and infant on an interval of 30 days

Thus, it can be inferred from the Figure 1 that depicts observations on four mothers over a period of 30 days (y-axis shows the number of days of observations) on nipple contact and mutual physical distance that mothers did not wean their infants by threatening, biting or other forms of punishment. Rather they weaned infants in a non-punishing way. These observations add to the literature on patterns and strategies of weaning in non-human primates; specifically in macaques.

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