

A growing number of studies have investigated the evolutionary drivers of external eye appearance in primates, but conclusive evidence is lacking. The literature has distinguished between two types of functions. Communicative functions, such as announcing a tame temperament via conjunctival depigmentation, and photo-regulatory functions towards the amount and quality of light in a given species' environment. Here, we assess the relative contribution of photo-regulatory and communicative functions to macaques' external eye appearance. Macaques' relatively well described social structure and wide distribution make them interesting to explore. We find that their sclera is more pigmented closer to the equator, suggesting photoprotective functions. However, this is not the case for the conjunctiva. We also explore individual variation in pigmentation adjacent to the iris, suggesting eyeball pigmentation in macaques is distributed to reduce damage to the corneal limbus. We find no evidence that communicative functions drive variation in external eye appearance in macaques.