Measuring self-directed behaviors in capuchin monkeys

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Social interactions are important for primates as they define the hierarchy and group in which subjects live. Such interactions, however, can be stressful (i.e., interacting with a dominant individual). In humans, some individuals show particularly heightened levels of stress in social interactions, sometimes reaching clinical levels as social anxiety. For this study, we developed a non-invasive assay to allow for assessing social anxiety in freely interacting primates, in order to use these animals as a model system to study the evolution of social anxiety in humans. This assay was based on individuals’ normal social behavior such as grooming and self-directed behaviors (i.e., scratching) that occur in situations of uncertainty and aggression. Species such as chimpanzees (*Pan troglodytes*), baboons (*Papio spp.*) and rhesus macaques (*Macaca mulatta*) have been recorded to show these behaviors in novel environments or those that elicit insecurity and anxiety, such as close proximity and crowding. However, some individuals show atypically high levels of these stress related behaviors, or take longer to return to baseline. To test this, we are examining the degree to which self-scratching differed before, during and after new monkeys were introduced into a social group of capuchin monkeys (*Cebus apella*).

For our procedure, we used focal observations of three subjects performed by observing each subject for ten minutes (once a day for the pre- and post- introductory period and multiple times a day during the introductory period). We recorded instances of self-scratching, as well as social interactions with their group members. We were most interested in self-scratching so those frequencies were tallied across the three time periods.

We found that that the number of scratches did not differ between the pre- and during introduction periods but was significantly lower after the introductions.

Thus, the data show that frequency of self-scratching does vary given certain, possibly stressful, situations which indicate that self-directed behaviors are a good measure of social anxiety.