**Cheryl Knott (**[**knott@bu.edu**](mailto:knott@bu.edu)**) and Caitlin O’Connell (**[**oc.caitlin@gmail.com**](mailto:oc.caitlin@gmail.com)**)**

**The project:** Examining how self-directed behavior (SDB) is impacted under different social conditions.

Hypotheses: Socializing is anxiety-inducing, as measured by SDB. Some types of social partner are more anxiety-inducing than others. For adolescent females, the most social age-sex class of orangutans, socializing with large adults is more stressful than socializing with unflanged males or other adolescent females.

Predictions:

1. Rate of SDB is higher when orangutans are social versus when they are alone.
2. For adolescent females, socializing with adult females or flanged males is associated with elevated SDB rate, while socializing with unflanged males or other adolescent females is associated with no change in rate of SDB.

**Models to predict rate of SDB:**

**Dependent variable**:

self-directed behavior (SDB)

a rate: recorded as #occurrences/10 minutes, reduced to #occurences per minute

**Possible Independent variables**:

Social? Yes or No (1 or 0)

Focal age-sex class

Social partner category (adolescent female, unflanged male, adult female, adult male) present Y or N (1 or 0) – did a separate model for each type of social partner

Focal age-sex \* Social Y or N \* adolescent female partner present Y or N

# social partners present

**Random variables:**

Focal ID

Social event #/date

**Problem:** Sometimes when a focal animal is social, there are multiple individuals present. I have not accounted for that in my models. So it is hard to say which social partner is causing an elevation in SDB. What is very interesting, is that adult females and flanged male social partners are more stressful for adolescent females, but if there is ALSO another adolescent female present, their rate of SDB is actually reduced. But that is not shown in the model, it is just something I have pointed out since 96% of the associations between two adolescent females ALSO have an adult female or adult male present. But I do not know how to show that in the models.

Example of the SDB models:

**Table 7. Results of a GLMM predicting rate of SDB based on the effect of focal age-sex, social state (social or solitary), interaction between them, the presence or absence of a flanged male social partner, and the three-way interaction between the age-sex of the focal\*social state\*presence or absence of a flanged male social partner. Significant effects are in bold.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **F** | ***df1*** | ***df2*** | **P** |
| Corrected Model | 7.512 | 9 | 1,523 | 0.000 |
| **Focal age-sex** | 3.785 | 3 | 1,523 | **0.010** |
| Social Y or N | 1.801 | 11 | 1,523 | 0.180 |
| Focal age-sex\*Social Y or N | 1.984 | 3 | 1,523 | 0.114 |
| **Flanged Male Present Y or N** | 10.389 | 1 | 1,523 | **0.001** |