

KonradAffiliative interactions modulate stress responses and parasite burden in Northern Bald Ibis



Verena Puehringer-Sturmayr, Kurt Kotrschal, Didone Frigerio

Contact: puehringer_verena@gmx.at

Core Facility KLF for Behaviour and Cognition, University of Vienna, 4645 Grünau, Austria; Department of Behavioural Biology, University of Vienna, 1090 Vienna, Austria

Introduction

In group living animals social context represents one of the most potent stressors. Chronic activation of the physiological stress response may also have pathogenic consequences, for instance by influencing parasite burden. Affiliative interactions may buffer individual stress responses and ultimately enhance reproductive success. The aim of this study was to investigate the relationship between social interactions and physiology and the flying area in Northern Bald Ibis, a critically endangered bird with a seasonal monogamous mating system.

Methods

individually marked birds free flying colony of the Konrad Lorenz Research Station

focal observations (5 min)

frequency of initiated and received affiliative behaviour

monitoring of flying range with GPS-UHF loggers

collection of droppings

 excreted corticosterone immune-reactive metabolites (CORT) (enzyme-linked immunoassay) oocysts and egg count (McMaster counting chamber)

statistical analyses

generalized linear mixed models linear mixed-effects models

Social alliances & parasite burden

Social alliances & corticosterone metabolites

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Is there a relationship between affiliative interactions and the amount of CORT?



Figure 2. Adults were involved in more affiliative interactions as compared to subadults.

Pair partner interactions & flying area



unpaired ones.

Figure 2. There was a trend towards higher cumulative travel distances for the breeders versus nonbreeders. T=trend

Conclusion

Our results suggest that being well embedded in a social network benefits individual stress management. Especially socially bonded adults (e.g. breeders) seem to buffer their stress load by exchanging high frequencies of affiliative behaviour. The mechanism behind is probably the dampening effect of emotional social support on corticosterone and the effect of this on the immune system. Furthermore, interactions between breeding partners are not just nest-bound, supporting the hypothesis that pair partners may recognize each other individually even outside the nest. In addition, breeders have a greater flying distance than non-breeders, which may be explained by the effort of the frequent feedings of the nestlings.



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