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Do Non-Human Primates Have Gender?

Aaron Pelchat
University of Rhode Island, apelchat247@gmail.com

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Introduction

While gender expression in humans is extremely varied across cultures, the impact of gender presentation is felt by each human, uniquely and with force. The way one presents their gender has many impacts beyond physical appearance, including but not limited to: career preferences, health outcomes, and even the emotions that one feels as though they are allowed to express. The objective of this project was to question the assumption that gender exists solely within our species, specifically focusing on our closest primate relatives.

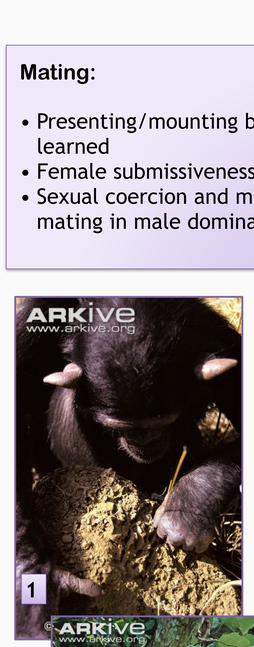
Methods

Considering my question had not previously been examined in academia, my methodology for this project was to gather what information I could from academic literature to set a precedent for future research. I decided upon four major areas to focus on when examining academic literature on sex differences in the behavior of nonhuman primates; mating behavior, foraging behavior, aggression, and caregiving. These areas were chosen as they are areas where we see the most differential behavior depending upon an individual's gender in humans. As such, while conducting my study I was looking to see evidence that the sex differential behavior we are seeing in these four areas was in large part formed by the social sphere that these nonhuman primates live in rather than biological sex differences. After deciding upon what areas to examine and what to look for in my search I created search terms to place into Google Scholar. Once my terms were decided, I examined the first 40 results for each term. Following my examining 160 different search results I used my notes, as well as background research that I had conducted, to find trends that I determined to be for or against nonhuman primates gender.

Results

Mating:

- Presenting/mounting behaviors are socialized/ learned
- Female submissiveness and male aggression linked
- Sexual coercion and male aggression common in mating in male dominant primate societies



1: Chimpanzee using a grass stem to fish for termites
2: Chimpanzees eating a Red Colobus monkey
3: Female Chimpanzee using hammer and anvil technique to crack open nuts

1: Eastern Mountain Silverback gorilla mounts female
2: Female eastern Mountain Silverback gorilla shows submission to silverback
3: Rhesus macaques mating

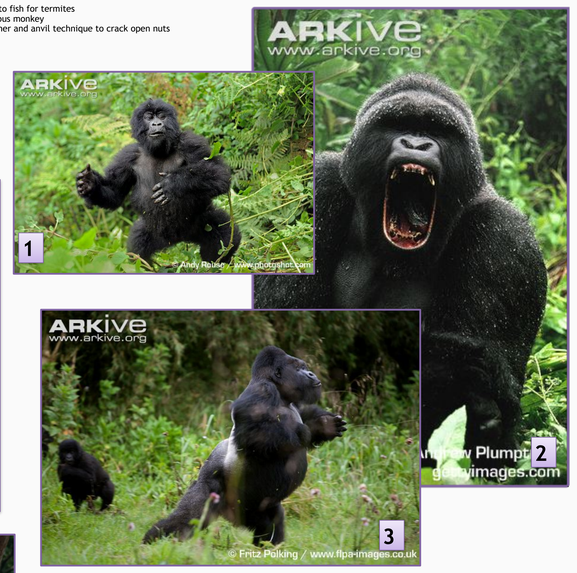
Foraging:

- Males more likely to engage in risky hunting behavior for vertebrate prey, go longer distances for food, and spend more time on vigilance than foraging behaviors
- Females more likely to engage and succeed in inventive foraging practices (i.e. opening nuts, termite fishing)

Aggression:

- Social cohesion among males linked to higher levels of aggression (often directed towards females)
- In male dominant societies females are often isolated while males form all male subgroups
- Larger body size in males positively correlates with dominance
- Androgens provide a genetic predisposition that is then heavily molded and shaped by a primate's social sphere

1:Rhesus macaque holds their young
2:Pair bonded white cheeked Gibbons and their offspring
3:Black Spider Monkey and her offspring



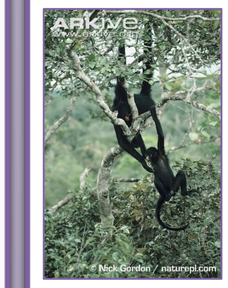
1:Male juvenile Gorilla shows learned behavior in practicing chest thumping
2:Silverback Eastern Mountain Gorilla exposes large canines
3:Silverback Eastern Mountain Gorilla beats his chest

Caregiving:

- In the majority of primate species males do not care for offspring
- Larger body size differences between males and females negatively correlates with male caregiving
- Paternal investment is important, either as a caregiver or as a protector

Discussion

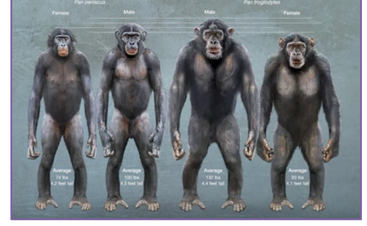
- Bigger differences in body size helps to enable sex differences in non-human primate behavior
- Social cohesion among the dominant sex teaches that sex how to remain dominant, even without a bigger body size
- Each different primate social sphere has varied expectations for males and females
- Most sex differences are learned behavior that larger body size and presumed dominance allows



Species	Sex	Weight (kg)	Power Differential (Dominant/ Submissive/ Egalitarian
Bonobo *P. paniscus*	Male	39 (+20.51%)	Submissive
	Female	31	Dominant
Chimpanzee *P. troglodytes*	Male	(40-60) 50 (+21%)	Dominant
	Female	(32-47) 39.5	Submissive
Gorilla *G. gorilla*	Male	181 (+53.04%)	Dominant
	Female	(72-98) 85	Submissive
Black Spider Monkey *Ateles paniscus*	Male	10.8 (+10.56%)	Dominant
	Female	9.66	Submissive
White-cheeked Gibbon *N. leucogenys*	Male	5.6	Egalitarian
	Female	5.8 (+3.45%)	Egalitarian
Rhesus Macaque *M. mulatta*	Male	7.7 (+30.65%)	Dominant
	Female	5.34	Submissive
Tufted Capuchin *C. appella*	Male	3.65 (+30.96%)	Dominant
	Female	2.52	Submissive

Table created by author with data from http://pin.primate.wisc.edu

Above: Male spider monkeys socialize
Above right: Graph depicting weight variance power differential in seven primate species
Right: Image showing sexual dimorphism in body size in Chimpanzees and Bonobos



http://www.naturalheightgrowth.com/2016/03/15/physical-differences-chimpanzees-bonobos-tell-us/

Conclusion

After completing my literature study I believe that nonhuman primates have gender, just not in the human sense. They have exhibited differential behavior that is linked to, but not determined by, sex that is heavily affected and formed by the social sphere within which they live. However, the phenomenon of nonhuman primate gender is far less complex than human gender given the much higher brain capacity of humans, our increased technological capacity and intricate cultural systems. I would say that nonhuman primates a have a "proto-gender" when compared to gender systems in human culture.

Photo Credit

All photographs, unless otherwise noted, are thanks to Arkive Online, a website dedicated to being a multimedia guide for the world's most endangered species. (http://www.arkive.org)

Acknowledgements

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