

Human behavior in operating rooms parallels primate patterns of hierarchy and gender

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A team led by a researcher who customarily studies nonhuman primate behavior has found that humans working in operating rooms (ORs) follow the same general primate patterns of hierarchy and gender.

Their results are published in the *Proceedings of the National Academy of Sciences*, in a paper titled "Ethological Observations of Social

Behavior in the Operating Room."

In a project they term '[operating room](#) primatology,' the researchers used ethological observation methods to record all social interactions within teams in three ORs during 200 surgical procedures. Previous studies of behavior in health care teams have mostly relied on questionnaires, rather than records of actual behavior.

Ethology is the study of humans and other species from an evolutionary perspective, and ethological observations are live recordings of everything that happens in a group over a certain time period.

The study reached three major conclusions: (1) conflicts were directed mostly down the hierarchy between members several ranks apart; (2) [conflict](#) and cooperation in the OR varied by gender, with less cooperation when the OR team included more male members; and (3) there was less conflict and more cooperation if the attending surgeon's gender (male or female) differed from that of the majority of the team.

The study's authors note that ORs are staffed by hierarchical, mixed-gender clinical teams that engage not only in technical communications, but also a variety of social interactions.

"Based on what we know about other species as well as human anthropology, rivalries and conflict are more typical within than between genders," says first author Laura K. Jones, Ph.D., postdoctoral research fellow in the Department of Psychology at Emory University. "This is why higher-ups in the social hierarchy, such as the alpha individual, need to assert their status especially vis-a-vis their own gender. This dynamic may explain our results," says Jones.

"In healthcare, we use many terms that, if not rusty, need rethinking," says co-author Bonnie Jennings, Ph.D., RN, professor at Emory's Nell

Hodgson School of Nursing. One of these is the concept of "teams" and how they function. Our study offers fresh insights that may help to re-define the team concept and offer ways to better examine the notion of teams in future studies."

Frans B. M. de Waal, Ph.D., professor of psychology at Emory University and director of the Living Links Center at Emory's Yerkes National Primate Research Center, is senior author of the study. Melinda K. Higgins, Ph.D., associate research professor at Emory School of Nursing, is a co-author.

The research team used an "ethogram" to live record 6,348 spontaneous social interactions and nontechnical communications on an iPad during 200 surgical procedures. The researchers focused on cooperation vs. conflict. Cooperation was defined as affiliative behavior and team building, including chit-chat, exchanging pleasantries, bi-lateral joking, and teaching. Conflict was defined as team-disintegrating behaviors, including yelling, being curt or disrespectful, and unilateral joking.

The observations were conducted from 2014-2016 at three large urban teaching hospitals with the explicit permission of the hospital administrations and surgical departments. It included the participation of 400 different clinicians, including attending surgeons, surgical fellows or residents, anesthesia providers, circulating nurses, and surgical scrub personnel (registered nurses or technicians).

Cooperation sequences (59.0 percent) were more frequent than conflict sequences (2.8 percent), which ranged from constructive differences of opinion to discord and distraction that could potentially threaten patient safety. Behavior varied by clinical role and gender composition of the team. The authors also noted that conflict is not necessarily a negative thing, and can be constructive and educational.

"Our goal was to use the techniques and concepts of evolutionary biology to understand how humans interact in the operating room," says de Waal, an ethologist renowned for his work on primate politics and peacemaking. "Instead of using post-hoc questionnaires, which are unreliable and often self-serving, we wanted to record actual behavior and relate it to hierarchy and gender. Our findings show that the OR is a microcosm of typical primate social tendencies."

The authors note that with increasing diversity in the OR, the dynamics of conflict and cooperation can be expected to change. "These findings may inform ongoing and future interventions designed to improve team performance and patient safety."

More information: Laura K. Jones et al., "Ethological observations of social behavior in the operating room," *PNAS* (2018).

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