# Human Behavior & Evolution Society

## 34th Annual Meeting

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# Welcome to HBES 2023!

Welcome to the 34th annual meeting of the Human Behavior and Evolution Society at the Renaissance Hotel Palm Springs. We are very excited to see everyone in person again after years of virtual meetings! As many of you know, California has been an important part of the society's history, we are incorporated as a non-profit here and many influential researchers in the field spent substantial parts of their careers at University of California and Cal State campuses. Evolutionary perspectives continue to thrive in various academic departments across the state and we are excited to welcome them and our extended HBES family from around the world to the desert oasis of Palm Springs. The city itself boasts a great selection of restaurants, bars, and cultural activities as well as the Village Fest Artisan Night Market every Thursday evening, the Living Desert Zoo, and easy access to Joshua Tree National Park.

The conference program this year pretty much follows the traditional format of previous conferences. After the Wednesday afternoon plenary and sessions, we will have a welcome reception in the Ballroom Foyer. Students were invited to sign up for the society sponsored mentorship lunch on Thursday and late Thursday afternoon we will have the poster session accompanied by snacks and libations. The Women of HBES group will also be having a networking gathering immediately after the poster session. The society will hold its business meeting during the lunch break on Friday and Friday evening the BBQ will be held in the Ballroom Foyer and adjacent patio. Saturday evening, we will gather in the Ballroom for the banquet and keynote address.

No conference can take place without lots of behind the scenes players. We would like to thank our program committee (Mitch Brown, Elizabeth Cashdan, Nicole Hess, Michael Mills, and Larry Sugiyama) for digging in and getting through all the submitted abstracts well before our deadline for notifying folks of acceptance. We would also like to thank the HBES executive council for their financial support of student members, both in terms of conference registration and hotel room subsidies. In addition, the executive council is continuing to support parental investment at the conference by subsidizing childcare for attendees with children.

Please let us or any of our student volunteers know if you have any questions about the conference or Palm Springs and the surrounding desert cities. You'll recognize us by a purple star sticker on our name badges. We're happy to help in any way we can! And we hope that your conference experience will be intellectually stimulating and enjoyable across the board.

Jessica Hehman and Catherine Salmon

HBES Host Committee

# Acknowledgements

Host Committee: Jessica Hehman, Catherine Salmon

Program Committee: Mitch Brown, Elizabeth Cashdan, Jessica Hehman, Nicole Hess, Michael Mills, Catherine Salmon, Larry Sugiyama

Conference Webmaster: Bernhard Fink

Poster Award Committee: To be announced at the award ceremony

New Investigator Award Committee: To be announced at the award ceremony

Post-Doctoral Award Committee: To be announced at the award ceremony

Student Mentor Lunch Organizer: Summer Mengelkoch

Grievance Committee: Michael Barlev, Martin Daly, Jaimie Krems, Bobbi Low, Summer Mengelkoch, Karthik Panchanathan, Catherine Salmon

Women of the Evolutionary Behavioral Sciences (WEBS) organizer: Debra Judge

Student Volunteers: Derrick Ball, Adison Kaiser, Melanie Lopez, Anthony Pulford

Sponsors: HBES, Polish Society for Human & Evolution Studies (PTNCE), The Royal Society Publishing, Society for Open Inquiry in Behavioral Sciences (SOIBS), University of Redlands Psychology Department

# HBES Officers

| | |
|---|---|
| **President** | David Schmitt |
| **Past President** | Leda Cosmides |
| **President Elect** | H. Clark Barrett |
| **Treasurer** | Jessica Hehman |
| **Secretary/Archivist** | Lisa Welling |
| **Student Representative** | Summer Mengelkoch |
| **Council Member at Large (2023) & Interim Communications Officer** | Pat Barclay |
| **Council Member at Large (2023)** | David Puts |
| **Council Member at Large (2025)** | Coren Apicella |
| **Council Member at Large (2025)** | Chris von Rueden |
| **Council Member at Large (2027) & Interim Webmaster** | Jaimie Krems |
| **Council Member at Large (2027)** | Joshua Tybur |

# HBES Meetings

| | | |
|---|---|---|
| Publication Committee Meeting (closed), Wednesday May 31 | 9:00 am — 11:00 am | Snowcreek |
| Executive Council Meeting (closed), Wednesday May 31 | 11:00 am — 1:30 pm | Snowcreek |
| Business Meeting (open to all), Friday June 2 | 11:40 am — 1:30 pm | Santa Rosa |

# Important Information

**Registration**

| | |
|---|---|
| Wednesday May 31 | 9:00 am — 6:00 pm tables set-up outside the Santa Rosa room |
| Thursday June 1 | 9:00 am — 5:00 pm tables set-up outside the Santa Rosa room |

**Hotel Restaurant/Bar Hours**

| | |
|---|---|
| Date restaurant open only for breakfast | 7:00 am—10:30 am |
| Rocks bar/restaurant open for lunch and dinner | 11:00 am—10:00 pm (food served until 9:00 pm) |

**Poster Set-Up**

The Poster Session will be held in the Ballroom Foyer from 5:00pm—7:00pm on Thursday, June 1. Posters can be set up any time after the morning Plenary and should be taken down at the end of the poster session. Presenters should stand by their poster during the poster session.

# HBES Code of Conduct

Attendees at HBES events must agree to the following as a condition of registration:

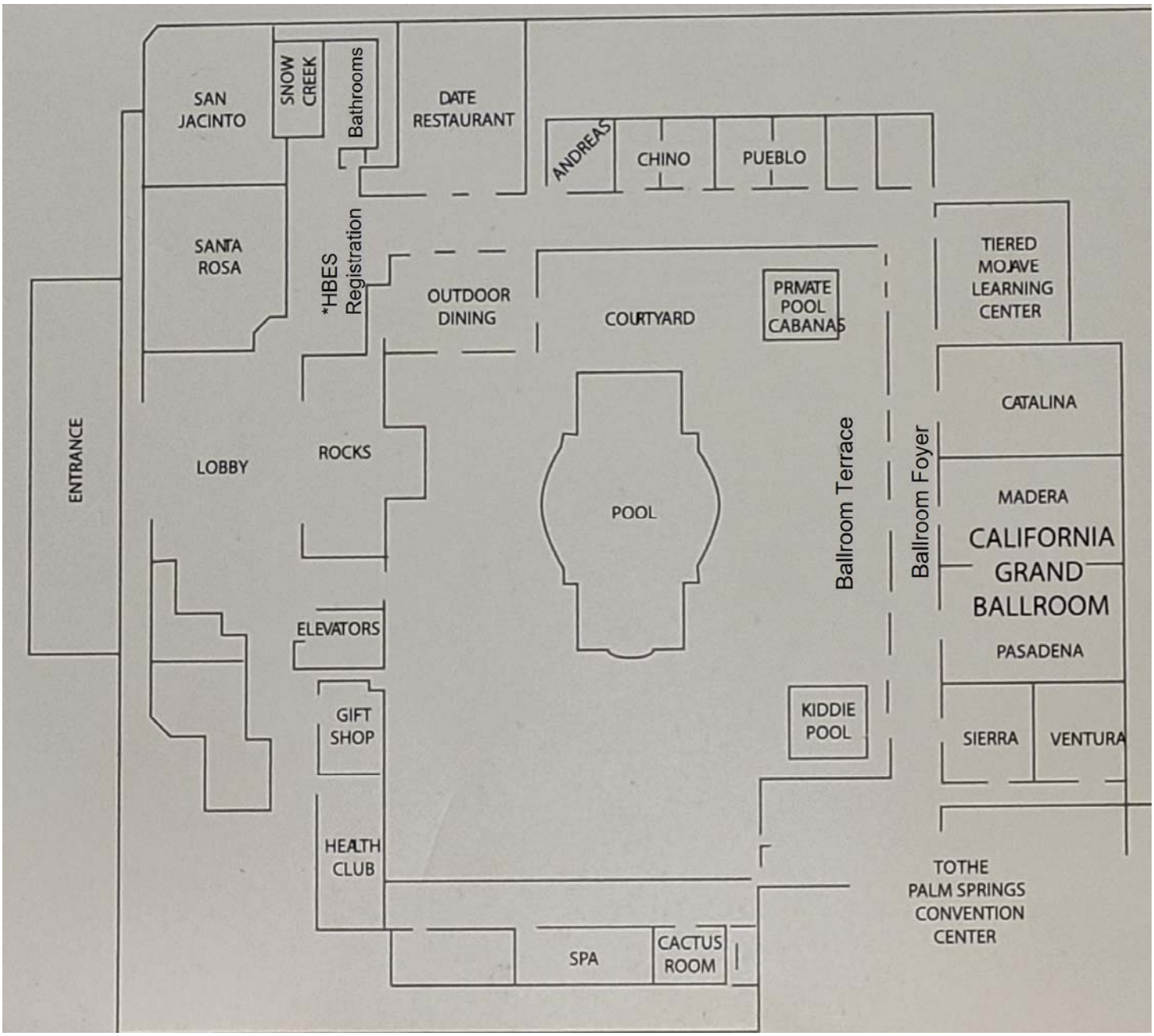
- Treat all participants, HBES staff, and vendors with courtesy and consideration.
- Be respectful and collaborative, critiquing ideas rather than individuals.
- Abuse, intimidation, discrimination, and sexual harassment are unacceptable. Sexual advances, requests for sexual favors, or sexually directed remarks constitute sexual harassment when such conduct (1) persists despite rejection, (2) is grossly inappropriate, or (3) is made to a subordinate who might reasonably fear that their position would be jeopardized if those advances were rejected. Additional information about harassment is provided in the full code of conduct (Sept 20, 2018).
- Be mindful of your surroundings and of your fellow participants, and alert a member of the HBES grievance committee if you need assistance or notice a dangerous situation or someone in distress. The names and contact information of the grievance committee are on the meeting and main HBES websites. The grievance committee may offer advice and may attempt to mediate disputes, and will report formal complaints to the Executive Council. The Council may, at its discretion, issue warnings, ask violators to leave the HBES meeting, or, for serious or repeated violations, revoke membership in the society. The investigative procedure is described in the full code of conduct (Sept 20, 2018).
- Respect the rules and policies of the meeting venue, hotels, and any HBES-contracted facility.

Seeking assistance and reporting an incident:

- If an individual at an HBES event believes they have experienced or witnessed harassment, discrimination, or bullying, they should contact a member of the grievance committee, either in person at the conference or by email. If they prefer, they may ask someone else to contact the grievance committee on their behalf, but their identity must be shared with the committee so that the com- plaint can be investigated. Both the complainant and the accused may bring someone with them for support at any point during the proceedings. The complainant and accused will not be required to meet to discuss the incident. Confidentiality and discretion throughout the process is expected from all parties involved.
- HBES members may seek assistance from the grievance committee without making a formal complaint, and if the complainant wishes, grievance committee members may attempt to resolve the dispute through informal mediation. Such a step would not involve either a record of the encounter, or sanctions by HBES. If the person wishes to make a formal complaint, it must be done in writing and will be investigated according to the procedure below. The accused will be given the option to respond to any formal complaint.

Grievance Committee members at the conference can be identified by their nametag. Current members of the Grievance Committee are Bobbi Low, Catherine Salmon, Jaimie Krems, Karthik Panchanathan, Summer Mengelkoch, Michael Barlev, and Martin Daly.

# Map of First Floor of Hotel and Meeting Space



# PROGRAM OVERVIEW

**WEDNESDAY, MAY 31**

| | | |
|---|---|---|
| 9:00 AM – 6:00 PM | Conference Registration | Hallway outside Santa Rosa room |
| 9:00 AM – 11:00 AM | Publications Meeting | Snowcreek Boardroom |
| 11:00 AM – 1:30 PM | Executive Council Meeting | Snowcreek Boardroom |
| 1:40 PM – 2:00 PM | Opening Remarks | Ballroom |
| 2:00 PM – 3:00 PM | Plenary: Michelle Scalise Sugiyama | Ballroom |
| 3:00 PM – 3:20 PM | Coffee Break | Ballroom Foyer |
| 3:20 PM – 4:20 PM | Session 1 | Ballroom, San Jacinto, Mojave |
| 4:20 PM – 4:30 PM | Transition Break | |
| 4:30 PM – 5:50 PM | Session 2 | Ballroom, San Jacinto, Mojave |
| 6:00 PM | Welcome Reception | Ballroom Foyer |
| 8:00 PM | LGBTQ+ Networking/Social Event | Rocks bar (hotel lobby) |

**THURSDAY, JUNE 1**

| | | |
|---|---|---|
| 9:00 AM – 5:00 PM | Conference Registration | Hallway outside Santa Rosa room |
| 9:00 AM – 10:00 AM | Plenary: Steven Neuberg | Ballroom |
| 10:00 AM | Posters can be set up | Ballroom Foyer |
| 10:00 AM – 10:20 AM | Coffee Break | Ballroom Foyer |
| 10:20 AM – 11:40 AM | Session 3 | Ballroom, San Jacinto, Mojave, Pueblo |
| 11:40 AM – 1:30 PM | Lunch Break | |
| 11:40 AM – 1:30 PM | Student Mentor Lunch | Santa Rosa |
| 1:30 PM – 2:30 PM | Plenary: Paul Vasey | Ballroom |
| 2:30 PM – 2:50 PM | Coffee Break | Ballroom Foyer |
| 2:50 PM – 3:50 PM | Session 4 | Ballroom, San Jacinto, Mojave, Pueblo |
| 3:50 PM – 4:00 PM | Transition Break | |
| 4:00 PM – 5:00 PM | Session 5 | Ballroom, San Jacinto, Mojave, Pueblo |
| 5:00 PM – 7:00 PM | Poster Session | Ballroom Foyer |
| 7:00 PM | Posters must be taken down | Ballroom Foyer |
| 7:00 PM | WEBS Social Event | Santa Rosa |

**FRIDAY, JUNE 2**

| | | |
|---|---|---|
| 9:00 AM – 10:00 AM | Plenary: Michael Rose | Ballroom |
| 10:00 AM – 10:20 AM | Coffee Break | Ballroom Foyer |
| 10:20 AM – 11:40 AM | Session 6 | Ballroom, San Jacinto, Mojave, Pueblo |
| 11:40 AM – 1:30 PM | Lunch Break | |
| 11:40 AM – 1:30 PM | HBES Business Meeting | Santa Rosa |
| 1:30 PM – 2:30 PM | New Investigator Competition | Ballroom |
| 2:30 PM – 2:50 PM | Coffee Break | Ballroom Foyer |
| 2:50 PM – 3:50 PM | Post-Doctoral Competition | Ballroom |
| 3:50 PM – 4:00 PM | Transition Break | |
| 4:00 PM – 5:00 PM | Plenary: Gerald Carter | Ballroom |
| 5:00 PM – 5:20 PM | Coffee Break | Ballroom Foyer |
| 5:20 PM – 6:40 PM | Session 7 | Ballroom, San Jacinto, Mojave, Pueblo |
| 7:00 PM | BBQ | Ballroom Terrace |

**SATURDAY, JUNE 3**

| | | |
|---|---|---|
| 9:00 AM – 10:00 AM | Session 8 | Ballroom, San Jacinto, Pueblo |
| 10:00 AM – 10:20 AM | Coffee Break | Ballroom Foyer |
| 10:20 AM – 11:40 AM | Session 9 | Ballroom, San Jacinto, Mojave, Pueblo |
| 11:40 AM – 1:30 PM | Lunch Break | |
| 1:30 PM – 2:50 PM | Session 10 | San Jacinto, Mojave, Pueblo |
| 2:50 PM – 3:10 PM | Coffee Break | Ballroom Foyer |
| 3:10 PM – 4:30 PM | Session 11 | San Jacinto, Mojave, Pueblo |
| 4:30 PM – 4:40 PM | Transition Break | |
| 4:40 PM – 5:40 PM | Session 12 | Mojave, Pueblo |
| 6:00 PM – 7:30 PM | Banquet | Ballroom |
| 7:30 PM – 9:00 PM | Keynote: Bobbi Low | Ballroom |

# PLENARY AND KEYNOTE ABSTRACTS

## A Storied Past: Storytelling and the Emergence of Cumulative Culture

MICHELLE SCALISE SUGIYAMA
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INTRODUCTION BY JOHN TOOBY
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Occupation of the foraging niche requires an extensive body of ecological knowledge, and humans rely heavily on social learning to master this curriculum in an efficient, timely manner. This presents a formidable information management problem: In the absence of writing, how did our hunter-gatherer ancestors accurately store and transmit their accumulated knowledge from generation to generation? Pronounced patterns in forager oral story corpora suggest an answer. Cross-culturally, these stories exhibit similar themes, genres, and characters, which in turn map onto critical domains of ecological knowledge. These stories also exhibit pronounced consistencies in their formal properties, predictably utilizing strategies that engage attention (e.g., ostensive communication) and facilitate memorization (e.g., repetition, rhythm, imagery). These patterns suggest that storytelling is an information technology that addresses key problems posed by our entry into the information niche: in conjunction with other forms of symbolic behavior (e.g., ritual, art, song, dance, games) storytelling provides a mnemonic framework for encoding accumulated knowledge, rules for faithfully copying it, and regular occasions for refreshing and transmitting it. Collectively, these behaviors may have been instrumental in the emergence of cumulative culture.

PLENARY ON WEDNESDAY, MAY 31, 2:00 PM – 3:00 PM, BALLROOM

**The Evolutionary Logics of Stereotyping, Stereotypes, Prejudices, and Discrimination**

STEVEN NEUBERG
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INTRODUCTION BY DOUGLAS KENRICK
ARIZONA STATE UNIVERSITY

Prominent theoretical approaches to understanding stereotyping, the content of stereotypes, prejudice, and discrimination struggle to capture the great variability in the forms they take, the factors that shape these forms, and how these forms relate to one another. I present an alternative perspective, one predicated on the assumption that our evolved psychology is designed to predict, detect, and manage the threats and opportunities others potentially afford us. This affordance management approach not only captures what we have long known but, more important, generates a large number of novel (and now empirically supported) predictions about previously undetected nuances about stereotyping, stereotypes, prejudices, and discrimination that lie outside the theoretical architectures of prominent approaches.

PLENARY ON THURSDAY, JUNE 1, 9:00 AM – 10:00 AM, BALLROOM

## Mate Competition *Between* the Sexes: Primatological, Cross-Cultural, and Historical Thoughts

PAUL L. VASEY
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INTRODUCTION BY MICHAEL BAILEY
NORTHWESTERN UNIVERSITY

Darwinian sexual selection theory holds that mate competition occurs intra-sexually for opposite-sex partners. In this plenary, I show that whenever males and females prefer the same sexual partners, who themselves behave in a bisexual manner, then *inter*-sexual mate competition can ensue. This principle appears to hold across species, cultures, and historical time. Drawing on my 30+ year program of research on the sexual behavior in Japanese macaques (*Macaca fuscata*), I provide evidence of inter-sexual mate competition for female sexual partners in this non-human primate species. I also draw upon my long-term cross-cultural research in Samoa (20+ years) and among the Istmo Zapotec in Oaxaca, Mexico (8+ years), to provide evidence from these two distantly related cultures of inter-sexual mate competition between women and "third" gender, same-sex attracted males (*fa'afafine, muxes*) for masculine men. Finally, to add some temporal depth of knowledge, I conclude by describing a series of five remarkable letters written in 1664 in Silves, Portugal, that recount a prolonged sequence of intersexual mate competition between a woman and a feminine male for a bisexual man. Possible evolutionary consequences of these interactions, and evidence bearing on these possibilities, are discussed.

PLENARY ON THURSDAY, JUNE 1, 1:30 PM – 2:30 PM, BALLROOM

## Age Matters: Hamiltonian Age-Dependence in Mismatch

MICHAEL ROSE
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INTRODUCTION BY J. BRETT SMITH
UNIVERSITY OF ALABAMA

Hamilton's forces of natural selection were first published in 1966 in the context of the evolution of aging. Since then, a great deal of mathematical and experimental research has shown that they do indeed explain the chief features of aging, from its absence to its onset, and even its cessation. Unnoticed for some time, Hamilton's forces also scale the speed of age-specific responses to sustained environmental change. In our talk, we present mathematical and experimental research which establishes the principle that mismatch worsens with biological age, as a function of Hamilton's forces. Finally, we discuss the application of this basic scientific result for healthy human diet choices in the context of our evolutionary history.

PLENARY ON FRIDAY, JUNE 2, 9:00 AM – 10:00 AM, BALLROOM

## The Evolution of Cooperation in Bat Societies

GERALD CARTER
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INTRODUCTION BY LEDA COSMIDES
UNIVERSITY OF CALIFORNIA, SANTA BARBARA

*Why bats?* Understanding the evolution of cooperative traits in humans requires insight from nonhuman lineages. Almost a quarter of mammal species are bats and they are arguably the most ecologically diverse mammalian lineage, yet the diversity of their societies and cooperative behavior remains largely underappreciated in the field of social evolution. In this talk, I will first give a whirlwind tour of bat cooperation and social complexity. Although bats and primates diverged about 85 million years ago, they have converged upon several remarkable cooperative traits. Second, I will use my work on social bonding in vampire bats to discuss several topics relevant to human social behavior: the formation of friendships, social strategies for diversifying vs focusing cooperative investments, and interactions between reciprocity and fitness interdependence.

PLENARY ON FRIDAY, JUNE 2, 4:00 PM – 5:00 PM, BALLROOM

## Why Fertility?

BOBBI LOW
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INTRODUCTION BY MARTIN DALY
MCMASTER UNIVERSITY

In the 1960s, Paul and Ann Ehrlich famously warned of population growth so severe that it was literally a "bomb" that would explode beyond our abilities to deal with It. Today, sixty years later, we face the opposite trend, as several factors combine to yield later and lower births in many countries: intentional delays of childbearing for work and savings, and the sometimes-unexpected fertility costs of delaying childbearing. All of these are complicated by Covid-19. These different causes affect wealthy and poor countries differently, and may prompt national- and state-level responses. How will it affect YOUR life? Should we worry? What kinds of responses, if any, are appropriate?

KEYNOTE ON SATURDAY, JUNE 3, 7:30 PM – 9:00 PM, BALLROOM

# AWARD COMPETITION ABSTRACTS

**NEW INVESTIGATOR AWARD COMPETITION**
FRIDAY, JUNE 2, 1:30 – 2:30
BALLROOM

*Minhua Yan (Arizona State University; myan18@asu.edu), Sarah Mathew, & Robert Boyd*
**"Doing what others do" does not stabilize continuous norms**
Norm variation is a key source of behavioral variation among human populations. It is widely assumed that many behaviors, even deleterious ones, can persist as long as they are locally common because deviants suffer coordination failures and social sanctions. Previous models have confirmed this intuition, showing that different populations may exhibit different norms even if they face similar environmental pressures or are linked by migration. Crucially, these studies have modeled norms as having a few discrete variants. Many norms, however, have a continuous range of variants. Here we present a mathematical model of the evolutionary dynamics of continuously varying norms and show that when the social payoffs of the behavioral options vary continuously the pressure to do what others do does not result in multiple stable equilibria. Instead, environmental pressure, moral beliefs, and cognitive attractors determine the outcome even if their effects are weak, and absent such factors populations linked by migration converge to the same norm. The results suggest that the content of norms across societies is less arbitrary or historically constrained than previously assumed. Instead, there is greater scope for norms to evolve towards optimal individual or group-level solutions. Our findings also suggest that cooperative norms such as those that increase contributions to public goods might require evolved moral preferences, and not just social sanctions on deviants, to be stable.

*Lei Fan (Vrije Universiteit Amsterdam; l.fan@vu.nl), Joshua M. Tybur, & Benedict C. Jones*
**Are people more averse to microbe-sharing contact with ethnic outgroup members? A registered report**
Intergroup biases are widespread across cultures and time. The current study tests an existing hypothesis that has been proposed to explain such biases: the mind has evolved to interpret outgroup membership as a cue to pathogen threat. In this registered report, we test a core feature of this hypothesis. Adapting methods from earlier work, we examine (1) whether people are less comfortable with microbe-sharing contact with an ethnic outgroup member than an ethnic ingroup member, and (2) whether this difference is exacerbated by additional visual cues to a target's infectiousness. Using Chinese (N = 1533) and British (N = 1371) samples recruited from the online platforms WJX and Prolific, we assessed contact comfort with targets who were either East Asian or White and who were either modified to have symptoms of infection or unmodified (or, for exploratory purposes, modified to wear facemasks). Contact comfort was lower for targets modified to have symptoms of infection. However, we detected no differences in contact comfort with ethnic-ingroup targets versus ethnic-outgroup targets. These results do not support the hypothesis that people interpret ethnic outgroup membership alone as a cue to infection risk.

*Dithapelo Medupe (Pennsylvania State University; dmedupe1@gmail.com), Sean Roberts, & Luke Glowacki*

**Why did foraging, horticulture and pastoralism persist after the Neolithic demographic transition? The Oasis Theory of agricultural intensification**

Around 11500 BP environmental conditions became less volatile ushering in the birth of agriculture. The development of intensive agriculture led to increased inequality compared to mobile foragers who generally had high levels of egalitarianism within age and sex. Although intensive agriculture rapidly spread across the globe, numerous populations did not adopt intensive agriculture until well into the 20th century. Why was this the case? One possibility, known as the Marginal Habitat Hypothesis, is that foraging persisted because foragers tended to live in marginal habitats not generally suited to agriculture, though recent empirical tests have failed to find support for it. In fact, many areas where foragers and horticulturalists persisted until the 20th century are home to productive intensive farms today. The competing Oasis Hypothesis claims that intensive agriculture thrived in areas with low biodiversity and a reliable water source not reliant on local rainfall but has not been empirically tested. We test these hypotheses using a cross-cultural sample drawn from the Ethnographic Atlas. Our analyses provide support for both the Oasis Theory and the Marginal Habitat Hypotheses. Intensive agriculture was unlikely in areas with high rainfall. We provide evidence that high biodiversity from rainfall limits the development of intensive agriculture.

**POST-DOCTORAL AWARD COMPETITION**

FRIDAY, JUNE 2, 2:50 – 3:50

BALLROOM

*Andrew Bishop (Arizona State University; abishop05@gmail.com), Amanda McGrosky, Benjamin Trumble, Michael Gurven, & Kim Hill*

**Prey Harvest Composition and Costly-Signaling among the Ache of Paraguay**

In hunter-gatherer societies, hunting is a vital activity and impacts social status and reproductive success. Despite the nutritional importance of hunted game, there is debate over whether hunters primarily seek to provision families through efficient hunting, or to advertise their phenotypic quality to potential mates and allies via the pursuit of difficult-to-acquire prey (costly signaling). These competing explanations were tested among the Ache hunter-gatherers of Paraguay, using a variety of ranking and forced-choice tests, administered to a sample of 52 informants (46% female, aged 15-76 years). When pairs of hunters who killed single animals of different species were compared, regressions analyzing ratings of hunters' provisioning ability, strength, fighting ability, disease resistance, and desirability as a mate and ally were all positively associated with killing large and hard-to-kill prey, but negatively associated with killing hard-to-find prey. However, when hunters who killed a single large animal were compared to hunters who killed an equivalent biomass of smaller prey, large game hunters were only preferred by 16%-41% of informants depending on the question asked, highlighting the importance placed on total biomass harvested as well as the potential for small game hunting to serve as a pathway to both signaling and provisioning.

*Miriam Lindner (Harvard University; mlindner@fas.harvard.edu)*

**The Sense in Senseless Violence: Male Reproductive Strategy and the Modern Sexual Marketplace as Contributors to Violent Extremism**

Mass shooters, violent extremists, and terrorists, who are overwhelmingly male, exhibit misogynistic attitudes and a history of violence against women. Over the past few years, incels ("involuntary celibates") have gathered in online communities to discuss their frustration with sexual/romantic rejection, espouse male supremacist attitudes, and justify violence against those who more successfully interact with members of the opposite sex. Despite the link between misogyny and mass violence, theories of misogynistic extremism remain scarce. I posit that the unique interaction between evolved male psychology, the dynamics of the sexual marketplace, and modern technologies create an ecology in which incel beliefs can thrive and make violence attractive. I show how individual factors (e.g., low status), social forces (e.g., a high degree of female empowerment), and the ease of coordination through social media give rise to misogynistic extremism. In my talk, I present empirical support for my predictions using data from the main, unmoderated forum of self-identifying incels (N = 15,000). In addition, I empirically test the novel hypothesis that mass violence and suicide – ruminations about which loom large in the incel community – might emerge as divergent behavioral strategies in response to grievances pertaining to inter-sexual choice and male-male competition, respectively.

*Patrick Durkee (California State University, Fresno; pdurkee@csufresno.edu), Aaron Lukaszewksi, & David Buss*

**Status-impact assessment: Is accuracy linked with status motivations?**

Status hierarchies are ubiquitous across cultures and have been over deep time. Position in hierarchies shows important links with fitness outcome. Consequently, humans should possess psychological adaptations for navigating the adaptive challenges posed by living in hierarchically organized groups. One hypothesized adaptation functions to assess, track, and store the status impacts of different acts, characteristics, and events in order to guide hierarchy navigation. Although this status-impact assessment system is expected to be universal, there are several ways in which differences in assessment accuracy could arise. This variation may link to broader individual difference constructs. In a preregistered study with samples from India (N = 815) and the USA (N = 822), we sought to examine how individual differences in the accuracy of status-impact assessments covaries with status motivations and personality. In both countries, greater overall status-impact assessment accuracy was associated with higher status motivations, as well as higher standing on two broad personality constructs: Honesty-Humility and Conscientiousness. These findings help map broad personality constructs onto variation in the functioning of specific cognitive mechanisms and contribute to an evolutionary understanding of individual differences.

# SESSIONS AND SYMPOSIA ABSTRACTS

(LISTED IN ALPHABETICAL ORDER BY FIRST AUTHOR'S LAST NAME)

*Aktipis, Athena (Arizona State University, athena.aktipis@gmail.com); Cronk, Lee; Todd, Peter; Dunn, Robert; & Pavlic, Theodore P.*

**The evolutionary history and future of collective risk management**

SESSION #10: COOPERATION IV

One of the reasons that humans form groups is to manage risk collectively. Humans have faced many risks throughout our evolutionary history, including illness, injury, intergroup conflict, natural disasters and uncertain returns from the environment. But forming groups for collective risk management comes with its own challenges including social dilemmas (who will invest in collective efforts to manage risk?), coordination problems (how to communicate in order to make risk management efforts work together effectively?) and information processing needs (how do individuals process and share information to improve collective decision making around risks?). Furthermore, solutions to all these problems may be qualitatively different at different scales, and, if the risk structure of the environment changes (e.g., due to climate change), then previously functional strategies may become maladaptive. To better understand the evolution of collective risk management and the limitations of different strategies, we can look to small-scale human societies, other animal societies (e.g., bats, birds, social insects), microbial systems, and the multicellular body itself. These natural laboratories can illuminate fundamental rules of life that illustrate how risk management evolves and may also provide new solutions to manage risk as our societies change in evolutionarily unprecedented ways.

*Altman, Maxwell (McMaster University, altmanm@mcmaster.ca); Aucoin, Courtney; & Andrews, Paul*

**Using an Adaptationist Perspective of Rumination to Reconsider the Metacognitive Model of Depression**

SESSION #6: MENTAL HEALTH

The analytical rumination hypothesis (ARH) is an evolutionary hypothesis that views depressive rumination as part of an adaptive cognitive process. Specifically, the ARH proposes that depressive symptoms promote distraction-resistant thoughts about the causes of problems and how they can be solved. Conceptualizing rumination as an adaptive process may conflict with the metacognitive model of depression which attributes part of depression's development and maintenance to the beliefs individuals have about their ruminations. However, if depressive rumination is part of an adaptive process, then positive metacognitive beliefs should serve to promote rumination and consequently help resolve individuals' depressive episodes sooner. We will report the results of two large studies (n=350+ each), involving undergraduate students from McMaster University, exploring the relevance of positive and negative metacognitive beliefs about rumination (PMBR and NMBR, respectively) in the context of the ARH. Participants completed self-reported questionnaires assessing depression severity, analytical rumination, and metacognitions. We predict that PMBR will facilitate the resolution of depressive episodes, while NMBR will inhibit the resolution of depressive episodes. These studies may clarify the role of metacognitive beliefs about rumination on the outcomes of depressive episodes and help resolve debates about the adaptive nature of rumination.

*Alvarado, Louis Calistro (Binghamton University--SUNY, lalvarado1@Binghamton.edu); Ellison, Peter T.; Lewarch, Caitlin; & Valeggia, Claudia R.*

**Seasonal variability in men's workload, reproductive effort, and salivary testosterone among Western Qom**

SESSION #7: ENDOCRINOLOGY I

Functional hypotheses of men's life history and testosterone variation propose separate adaptive mechanisms: H1) behavioral investment in mating effort vs. paternal involvement; H2) energetic regulation of somatic investment toward mating effort; H3) physiological support of physical activity. We examined seasonal variability in men's reproductive effort, testosterone levels, and workload among Western Qom, an indigenous population of transitional foragers. For this group, the wet season, or Wo'e, is characterized by increased food availability, decreased workload, and a culturally-ascribed time of mateship formation. By contrast, the dry season, Nakabia'Ga, exacts greater work demands and energy expenditure. Anthropometric, demographic, and life history data along with saliva samples were collected during Woe and Nakabia'Ga for 47 Qom men, 17-67 years. Morning and evening testosterone were significantly higher during Wo'e, a period when physical labor is attenuated but mating effort intensified (supporting H1&H2). Yet during Wo'e, although seasonal energy availability was increased generally across the study sample, testosterone elevation was specific to single/childless men, who had significantly higher morning testosterone than pair-bonded fathers (supporting H1). No statistical difference emerged for evening values. Overall, this patterned variation of seasonal testosterone fluctuation is most consistent with behavioral partitioning between mating and parenting effort.

*Antfolk, Jan (Åbo Akademi University, jantfolk@abo.fi); Gunst, Annika; Nylund, Irene; & Marklund, Emmie*

**The Roles of Reciprocal Altruism and Inclusive Fitness in the Development of Advantageous Inequity Aversion**

SESSION #3: SOCIALITY

Advantageous inequity aversion (i.e., the tendency to respond negatively to unfairness that benefits oneself) develops in 6–8-year-olds. Little is known about the selection pressures that might have shaped this phenomenon. We collected data from 120 4–8-year-old Finnish children and tested two possible evolutionary explanations for the development of advantageous inequity aversion: reciprocal altruism and inclusive fitness. We asked children to distribute five erasers between themselves, a sibling, a friend, and a stranger. Hence, an equal and fair distribution could be attained only by throwing away one eraser. In line with previous findings, 6–8-year-olds displayed advantageous inequity aversion by preferring to throw away a resource rather than keeping it for themselves. In our study, this behavior was also displayed in 5-year-olds. Second, we found no support for advantageous inequity aversion being shaped by either inclusive fitness or reciprocal altruism, as neither siblings or friends were favoured in the distributions. Future studies could investigate costly signaling and adherence to social norms to avoid negative consequences as ultimate explanations for advantageous inequity aversion

*Arnocky, Steven (Nipissing University, stevena@nipissingu.ca)*

**Does female breast morphology signal underlying immunocompetence?**

SESSION #9: MATING IV

Human female breast tissue is one of our species' most conspicuous secondary sex characteristics. Relative to other primate species, human breasts are larger and more enduring in a manner that extends far beyond their reproductive necessity. Breast tissue is also robustly attractive to males across cultures, suggesting that the trait may be sexually selected. However, it is unclear what, if any, information breast tissue may convey to a perceiver about the underlying quality of the female. In this talk, I will describe existing inconsistencies in research linking breast morphology to hormones, as well as novel evidence linking breast asymmetry to a marker of immunocompetence (salivary immunoglobulin-A). I will detail a reliable and valid method that can be used in research labs for assessing breast morphology, as well as proposed new directions in studying breast tissue from an evolutionary perspective.

*Asao, Kelly (Westminster College, kasao@westminstercollege.edu)*

**Don't say gay, but lesbian is okay: Predictors of sexual double standards for same-sex sexual behaviors in the U.S. and cross-culturally**

SESSION #4: MATING I

While past research on sexual double standards has focused on negative biases targeting women's short-term sexuality, the current research examines sexual double standards in the realm of same-sex sexual behaviors (SSB). Here, three studies find that men are judged more harshly for SSB both within the U.S. and cross-culturally. Study 1 (N=465) provides initial evidence for this phenomenon in the U.S. using a between-subjects design, with no evidence of sexual double standards against women. Using a within-subjects design, Study 2 (N=382) both replicates the findings of Study 1 and demonstrates that individual differences in religiosity and disgust-sensitivity predict endorsements of sexual double standards in SSB. Across 37 countries, Study 3 (N= 6,047) identifies cross-cultural predictors of sexual double standards in SSB, including religiosity and cues to disease prevalence. Taken together, findings suggest a robust sexual double standard against men's sexuality. Results further highlight the role of religion and disease avoidance mechanisms on moralization of SSB in men. Discussion focuses on why this double standard exists and how to reduce stigma against SSB in men.

*Aucoin, Courtney (McMaster University, aucoic2@mcmaster.ca); Altman, Max; & Andrews, Paul*

**An Evolutionary Exploration of Depression and Predisposition**

SESSION #6: MENTAL HEALTH

Under the Analytical Rumination Hypothesis, melancholic depression can be viewed as an adaptation that evolved to reallocate energy and resources toward cognitive processes in response to complex—often social—problems. This study utilizes a paradigm that induces depressive symptomology in a non-clinical sample through perceived social ostracism. Personality traits, particularly neuroticism and extraversion, as well as the prevalence of adverse childhood experiences (ACEs) have been documented to correlate with a higher risk of depression. Examining whether the susceptibility of our non-clinical sample to our paradigm is moderated by personality and/or ACEs would inform our evolutionary understanding of depression as an adaptation and response to complex problems with individual variability in susceptibility. This contrasts with the "conventional" clinical view of depression as a disorder. We predict our results to indicate that individuals with high neuroticism and/or low extraversion are more susceptible to this paradigm. We also predict that individuals who have experienced a greater number of ACEs will be more susceptible.

*Ayers, Jessica D. (Boise State University, jessicaayers@boisestate.edu)*

**How genetic conflict theory can inform studies of human nature**

SESSION #9: SEX DIFFERENCES & GENETIC CONFLICT

Understanding how genetics influences human psychology is something that evolutionary sciences emphasize. However, the functions of complex genetic influences on behavior have been overlooked in favor of perspectives that posit unitary influences of genes on behavior. One such example is the belief that human growth, development, and behavior are influenced uniformly by their genes even though previous research has highlighted the genetic conflict endemic in these domains. While much psychological research has robustly documented areas where we see the footprints of genetic conflict in human behavior, these areas are referred to by different names that prevent researchers from making connections under a unifying framework. In this paper, I outline what genetic conflict is and how genetic conflict can provide a unifying framework for psychological investigations of social relationships. Additionally, I discuss avenues for future research on genetic conflict in humans and the importance of considering cultural, ecological, and other developmental factors when researching the genetic influences on human behavior.

*Baca, Paola (University of Texas at Austin, paolabaca@utexas.edu); Costello, William; Hahnel-Peeters, Rebecka; & Buss, David*

**Individual Differences is Cross-Sex Mind-Reading**

SESSION #11: MIND THE GAP: ERRORS IN CROSS-SEX MIND-READING [SYMPOSIUM]

The current study investigated hypothesized individual differences relevant to successes and failures in cross-sex mind-reading related to sexual desires and sexual violence. Specifically, we test the extent to which individual differences in sociosexual orientation, self-perceived mate value, and dark personality traits (i.e., Machiavellianism, narcissism, and psychopathy) relate to domain-specific successes and failures in cross-sex mind reading. We hypothesized that traits associated with a sex-dependent successful mating strategy will predict the successes and failures in cross-sex mind-reading. We predicted men with more unrestricted sociosexual orientations may more frequently over-perceive women's sexual desires compared to men with restricted sociosexual orientations. In line with error management theory, poor cross-sex mind-reading of women's sexual desires may aid the facilitation of a promiscuous sexual strategy in men more psychologically-oriented toward an unrestricted sociosexuality. We also predicted that men scoring higher on dark personality traits and who are oriented toward a more unrestricted sexual strategy may underperceive women's psychological pain following sexual violence more than men scoring lower in the dark personality traits and who are more sexually restricted. Our study replicates and extends unpublished data from Buss and Schmitt. New data will be collected and analyzed before the 2023 Human Behavior and Evolution Society conference.

*Bainbridge, Constance (University of California, Los Angeles; cbainbridge@ucla.edu) & Bryant, Greg*

**Perception of group size across different co-vocalization types**

SESSION #5: PERCEPTION II

Across many species, group vocalizations play important roles in social interactions, as both adaptive signals and byproduct cues. Listeners are able to assess social information in vocalizations, such as fairly accurately evaluating the sex ratios in vocal ensembles, albeit with some interesting biases. Limited research on the size perception of a vocalizing group suggests that people tend to underestimate size when there are over three speakers. In the perception of group vocalizations in certain animal species, there's a tendency for group size estimates to instead become inflated, the co-called Beau Geste effect. Here, we further explored the size underestimation effect of human vocalizations, and examined whether group size was perceived differently across different vocal types (yelling, laughing, unison speaking, and overlapping talking). In two perceptual experiments using constructed group vocalizations from laboratory recordings, we found that listeners underestimated the size of vocal groups regardless of vocal type, but colaughing led to the greatest size underestimations, followed by unison speaking, with the largest group size judgments occurring in yelling and overlapping talking. These results demonstrate that vocalization type matters in the communication of group size, and could offer clues regarding form-function connections between group vocal behavior and vocal perception.

*Balboa, Nora (Kansas State University, nbalboa@ksu.edu) & Brase, Gary*

**What We Say Versus Why We Do: A Two-Factor Model of Helping Decisions in Hypothetical and Actual Helping Situations**

SESSION #3: COOPERATION III

Evolutionary theories of helping (e.g., kin and reciprocal altruism) include a strong emphasis on costs/benefits to actors as factors informing decisions to help. Social psychology's history of studying helping behavior, while also recognizing costs and benefits of actions, has historically put greater weight

on other situational factors that influence behaviors. Classic studies of helping behavior in psychology have also stressed the use of field research with confederates, based on a presumption that imaginary helping decisions are strongly affected by social desirability biases. As the use of online survey methods increasingly dominates much of psychology, it is even more pressing to understand to what extent hypothetical helping is comparable to actual helping decisions. The current study utilized both field research and hypothetical scenario surveys of the same set of helping behaviors, assessed on the same population. Helping situations varied in costs and benefits to both helper and recipient, as well as likelihood of reciprocation – key variables for most evolutionary models of helping. Preliminary analyses reveal that survey respondents report different helping patterns (via hypothetical scenarios) than those actually observed in the field. Further, the possibility of reciprocation differentially affected the decision to help in hypothetical, but not field, studies of helping.

*Barclay, Pat (University of Guelph, barclayp@uoguelph.ca)*

**Investment and error management: two explanations for cooperation biases and anonymous helping**

SESSION #2: COOPERATION II

Why have humans evolved to often cooperate even when they seem to be anonymous? I will present models on two potential solutions: error management and investment in one's partners (stake). First, under error management, people lose reputation if they are discovered being selfish or cheating, which selects for emotional biases towards cooperating. However, this explanation currently cannot account for "repentant sneaks", who repent if caught cheating and start cooperating thereafter. I will present a mathematical model showing that this "repentant sneak" strategy only works if victims cannot opt out from interactions. By contrast, in trust interactions, victims can refuse to trust a known cheater again, such that cheaters have no opportunity to repent or reinitiate cooperation; this rescues error management explanations from "repentant sneaks". Second, I will present mathematical models showing that organisms have a stake in their partners' condition: helping a partner – even anonymously – is an investment in their ability to reciprocate. The more that helping increases their condition, the more worthwhile it is, whether anonymous or observed. Together, these two solutions explain why humans are often emotionally biased towards cooperation, even when apparently anonymous, and can come to genuinely value others.

*Barlev, Michael (Arizona State University, mlbarlev@gmail.com)*

**Personal "religious" experiences as a path to religious belief**

SESSION #5: THE EVOLUTION OF SCIENCE AND RELIGION AS MEANING-MAKING SYSTEMS (PART 2) [SYMPOSIUM]

Why isn't religious belief exceedingly rare? Our minds are well-crafted for veridically representing the world around us (e.g., physical objects and their spatio-temporal properties, animals and their biology, and persons and their mental states) and for rejecting absurdities. Why, then, do so many of us believe in disembodied spirits, minds that survive their bodily deaths, heaven and hell, omniscient gods, and miracles? Past research has explained this paradox of religious belief using social learning heuristics. But although such heuristics can explain why religious beliefs spreads and remains stable in a population, they cannot explain how it originates. Here, I explore a new pathway to religious belief: personal "religious" experiences. I present a new, recently-validated instrument for mapping "religious" experiences across cultures, and present data from multiple studies outlining the relationship between such experiences and religious and spiritual beliefs.

*Barrett, H. Clark (University of California, Los Angeles; hclarkbarrett@gmail.com)*

**Recklessness, negligence, and the evolution of morality**

SESSION #11: MORALITY

Evolutionary social scientists continue to debate the evolved functions and nature of human morality. Some theorists hold that morality is primarily about judging the reasons, including intentions, behind others' acts. Others question the universality of this view, pointing to harsh judgments of accidents in some cultures and contexts, which could indicate a concern for outcomes alone. However, holding others responsible for accidents does not necessarily imply blindness to their reasons. Accidents can reveal important things about others' internal states, such as disregard, lack of care for others, or incompetence. Here I describe a cross-cultural study of judgments of reckless accidents (where the agent knows harm might occur) and negligent accidents (where the agent should have known harm might occur). Across diverse cultural settings, people are sensitive to the differences between these kinds of accidents, but nevertheless judge them both harshly. These results suggest that moral judgment is not restricted to judgments of intentional harm. They also suggest that accidents, too, are evaluated for their reasons. The findings support the view that moral judgments typically involve evaluating the reasons for others' actions, not merely their consequences, and that this is not culturally rare or peculiar.

*Baselice, Kathryn (DC Department of Behavioral Health, kbaseli21@gmail.com)*

**From Genes to Violence: A Look at Incels Through an Evolutionary Lens**

SESSION #2: VIOLENCE & AGGRESSION

Incels, also known as "involuntary celibates," are an online subculture of mostly young, heterosexual men who describe themselves as unable to obtain a romantic partner despite their efforts and desire to do so. They blame their lack of sexual access on perceived immutable genetic factors leading to undesirable physical characteristics, personality shortcomings, and a low place on the social hierarchy. Members of the group direct their vitriol towards women and society, whose standards they view as unfair. In recent years, the subculture has become increasingly radicalized, and the violent ideologies of Incels have been linked to several mass killings, including those committed by Elliot Rodger, Nikolas Cruz, and Alek Minassian. Although some Incels have attempted to use evolutionary psychology to justify some of their prejudices and claims, this presentation aims to turn the evolutionary lens back on Incels by using it to analyze several of their core features- namely, misogyny, group identity, rape and other forms of violence. Specifically, I will discuss how the evolutionary drives to establish and maintain social "in-groups," to eliminate sexual competition, and to bypass female mate choice underlies Incel discourse and ideology.

*Bear, Gordon (Ramapo College of New Jersey, gbear@ramapo.edu) & Pelham, Brett*

**Were Husbands Older Than Wives in Hunting-Gathering Societies? Novel Data from the Indigenous Huntsmen and their Spouses in the U.S. Censuses of 1880, 1900, and 1920—and We Know Their Names**

SESSION #10: MATING V

The U.S. Census of 1880, the first to link spouses, listed 281 marriages in which an illiterate husband's occupation was hunting and his "race" was "Indian." In 80%, the husband's recorded age was older, by an average of 8 years; in 8% the wife's was older, by an average of 5 years. All six regions of the continent showed the pattern; from 74% male older in Florida to 94% in the Southwestern Desert. It held for husbands in their teens (100%), in their 20s (79%), 30s (80%), 40s (81%), 50s (78%), 60s (81%), 70s (80%), 80s (100%), and 90s (100%), and similarly for the wives. The 1900 Census recorded 18 indigenous married Alaskan seal hunters; the 1920 Census, 46. In 83% and 80% of those marriages, respectively, the husband was older. Were ages sometimes rounded or estimated? Undoubtedly, but in

all three censuses the male-older pattern held for couples whose recorded ages were not multiples of 5 (79, 80, and 90%). Because infant-mortality rates are lower when the father is the older parent (up to a point; Pelham, 2021), this robust male-older pattern in pair-bondings may have figured into the biological evolution of humanity.

*Becker, D. Vaughn (Arizona State University, vaughn.becker@asu.edu)*

**Prediction, Detection and Memory in the Face of Contagious Threats**

SESSION #11: PATHOGENS

The COVID-19 global pandemic has brought with it a new interest in how social-cognitive factors and pre-existing prejudices can intrude on judgments about who might harbor the disease. Tasks like predicting which social targets pose a significant threat of contagion, detecting symptoms of those threats, and remembering who recently presented with symptoms, all can be profitably explored with methodologies like signal detection. We describe new studies in which participants evaluated faces that vary in race/ethnicity, gender, and social identity; they predicted, and then detected and remembered who showed signs of disease. Even though we counterbalanced symptomaticity across the social target types, reliable biases in prediction and memory emerged. These reflected both the actual threat ecology of the emerging pandemic, as well as more intractable evolutionary factors like the behavioral immune system. These results are consistent with Nesse's smoke detector effects and error management theory, but go beyond these adaptive biases to also reveal adaptive sensitivities.

*Bendixen, Mons (Norwegian University of Science and Technology, NTNU; mons.bendixen@ntnu.no); Stavang, Marius; & Kennair, Leif Edward Ottesen*

**When does the sex difference in sexual misperception emerge in adolescence?**

SESSION #9: SEX DIFFERENCES & GENETIC CONFLICT

Prior studies of sexual misperception examining adult populations have found that relative to men, women report being subject to opposite-sex sexual overperception far more than being subject to sexual underperception. The findings suggest that there are universal biases in the judgment of sexual interest in men and women. However, when during development does this misperception become adaptive and come online? In the current study, we examined this in a community sample of adolescents (n = 1,290) aged 16–19 using Profile Analysis of naturally occurring events. The findings suggest that more adolescent women reported being subject to sexual overperception than to sexual underperception last year. No difference was found for men. Age did not affect this pattern, thus dovetailing with previous findings on the emergence of sexual psychology sex differences. Relationship status, sexual experience, and self-reported mate value did also not affect this pattern. However, sociosexuality (SOI-R) was positively associated with overall level of misperception and more so for being sexually underperceived than for being sexually overperceived. The findings are discussed with regard to when sexual psychology mechanisms come online during adolescence and the robust but surprising lack of effect of relationship and sexual experiences.

*Benkley, Dylan (University of California, Santa Barbara; dbenkley@ucsb.edu); Tooby, John; & Cosmides, Leda*

**A Psychology of Collaboration: Regulation of Gratitude, Anger, and Partner Choice**

SESSION #2: COOPERATION II

Collaborative cooperation is zoologically rare; it poses unique computational problems not found in other forms of cooperation, such as risk-pool sharing. Collaboration also elicits equitable sharing (Hamann et al., 2011). Our initial experiments showed that the mind may have specialized machinery for collaboration, which identifies collaborative situations through two cues: a shared goal and

coordination, using them to regulate equitable sharing decisions. This specialized system may also use these cues to calibrate other relevant mechanisms. In an online fishing task, shared goal and coordination cues were manipulated. Participants then either made an allocation decision with gained resources or were the recipient of their (sham) partner's decision in a Dictator Game with a Taking Option (List, 2007). Collaboration cues determined participants' own, and expectations of their partner's, gratitude, anger, and desire for future cooperation. Interestingly, these effects were non-linear. Analysis suggests an inflection point (e.g., equitability for collaboration), such that allocations above this point elicit similarly high levels of gratitude, for example, while allocations below it elicit similarly low levels. Results further show that a shared goal and coordination are reliable cues in identifying collaboration, which regulates not just sharing decisions but multiple factors important for a specialized collaborative psychology.

*Blackwell, Aaron (Washington State University, aaron.blackwell@wsu.edu)*

**Does testosterone facilitate immunological tolerance? A revision to the immunocompetence handicap hypothesis**

SESSION #7: ENDOCRINOLOGY I

Testosterone is generally thought of as immunosuppressive, yet empirical results paint it as immunomodulatory, upregulating some responses and downregulating others. Typically, immune responses are conceptualized in terms of their ability to resist an infection, that is, to clear it from the body. However, immune responses may also facilitate tolerance, the ability to reduce the fitness costs of an infection without clearing it. In general, tolerance is likely to be energetically cheaper than resistance, and can postpones the costs of resistance. Tolerance is also important for cultivating beneficial microbiota and limiting immunopathology. I propose that testosterone affects the trade-off between tolerance and resistance. Testosterone increases regulatory T cells, and in humans is associated with increased prevalence of intestinal parasites, but lower egg burdens. In non-human primates, rank associates with intestinal parasites in some studies, but without clear fitness costs as high-ranking individuals are often in better condition. Testosterone is also associated with a more diverse gut microbiome, and effects on skin microbiome composition may explain scents that are associated with hormone levels. Conceptualizing testosterone as managing the tolerance/resistance tradeoff provides a more sophisticate interpretation of the immunocompetence handicap hypothesis and helps explain what keeps testosterone linked traits honest signals.

*Blake, Khandis (University of Melbourne, khandis.blake@unimelb.edu.au)*

**When fertile, women seek status via prestige but not dominance**

SESSION #10: ENDOCRINOLOGY II

Biological predictors of dominance have implications for psychological sex differences and rank in social hierarchies. Most investigations focus on dominance in men and testosterone, with diminished attention paid to dominance in women and other biological mechanisms. Other routes to status popular among women—such as via prestige in addition to dominance—have also been neglected. Here I examined whether status-seeking via prestige and dominance covaried with fertility probability in a citizen science project spanning 16 countries. Participants tracked their menstrual cycle, motivation for prestige and dominance, dominance contest outcomes, and three domains of self-esteem. Bayesian mixed models indicated that the motivation to obtain status via prestige but not dominance peaked when conception was likely, as did dominance contest losses and two self-esteem domains. Fertility appears to reorient female psychology toward prestige-based strategies to success, enhancing women's desire for social capital through influence and admiration, but not through fear or intimidation. Insights suggest that fertility motivates not only mating competition but gaining rank in social hierarchies.

*Boykin, Kaitlyn (University of Southern Mississippi, kaitlyn.boykin@usm.edu); Brown, Mitch; & Sacco, Donald F.*

**The Impact of Disease Saliency on Inferences of Parental Abilities Through Bodily Cues**

SESSION #9: MATING IV

Identifying mates able to invest in offspring is crucial for their survival. Such inferences often occur via physical cues, though desirability of these features may vary as a function of environment. Although body fat appears diagnostic of parental abilities, it remains heuristically associated with disease and derogated when disease is salient. Individuals may thus regard high body fat as detrimental to parenting in pathogenic environments. In the current study, participants were primed with either disease threat or a control before evaluating the parental abilities of four male and four female targets with varying levels of body fat. Targets additionally varied in size of secondary sex characteristics for both male (i.e., muscularity) and female (i.e., breast size) targets. High-fat female targets appeared more capable as parents. Low-fat female targets were perceived less favorably, particularly those with large breasts. High-fat male targets also appeared favorable as parents, although large muscles impeded these inferences. Disease saliency seemed to impede perceptions of parental abilities. Results provide evidence for an interplay between competing functional stereotypes of body fat informed by parenting and disease avoidant motives.

*Brandt, Elena (Florida State University, brandt@psy.fsu.edu) & Maner, Jon K.*

**Laws and Attitudes about Abortion Are Linked to Extrinsic Mortality Risk: An Evolutionary Perspective on Variability in Reproductive Rights**

SESSION #9: LIFE HISTORY II

Abortion policy is conventionally viewed as a political matter with religious overtones. This research offers a different view. From the perspective of evolutionary biology, abortion at a younger age can represent a means of prioritizing long-term personal development over immediate reproduction: a pattern established in other animal species as a feature of stable ecologies with low mortality risk. We examine whether laws and moral beliefs about abortions are linked with local mortality rates. Data from across 50 U.S. states, 2,500 individuals residing in 363 U.S. counties, and 202 world societies show that both laws and individual beliefs about the acceptability of abortions are robustly associated with local mortality risk levels, over and above conventional explanatory variables, including religiosity, political ideology, wealth, education, and industrialization. An integrated evolutionary and cultural perspective offers an explanation as to why moral beliefs and norms about reproduction may be sensitive to levels of ecological adversity.

*Brown, Mitch (University of Arkansas, mb103@uark.edu); Sacco, Donald F.; Barbaro, Nicole; & Drea, Kelsey M.*

**Contextual Factors That Heighten Interest in Coalitional Alliances with Men Possessing Formidable Facial Structures**

SESSION #1: PERCEPTION I

Men's facial width-to-height ratio (fWHR) is reliably diagnostic of formidability from which perceivers infer their capabilities in physical conflict. Acuity toward this prowess of high-fWHR men implicates these perceptions as valuable in identifying strong coalitional allies for intergroup conflict to compete against outgroup threats. We conducted five experiments by tasking participants to create coalitions for various situations from a selection of men exhibiting formidable and non-formidable facial structures (i.e., high-fWHR versus low-fWHR). In Studies 1-3, participants preferred formidable men in tasks that required strength but not tasks requiring intelligence. This preference was rooted in perceptions of their

formidability and not their anger. Results for Study 4 indicated this preference for formidable men emerged following the activation of competitive motives (versus cooperative motives) within a hypothetical outgroup environment. Study 5 indicated that this preference reflected a tolerance for formidability rather than affiliative interest. Results provide continued evidence for the signal value of fWHR in shaping social perceptions by considering how perceivers employ cost-benefit analyses in coalitional decisions based on functional stereotypes of formidable men's expected behavior.

*Burch, Rebecca (State University of New York at Oswego, rebecca.burch@oswego.edu); Komatsu, Hidenori; Kubota, Hiromi; Tanaka, Nobuyuki; Fisher, Maryanne L.; Rice, Samara; Salmon, Catherine; Wade, T. Joel; & Widman, David*

**The darkest 5%: A profile of the top Dark Triad scorers in three countries**

SESSION #2: PERSONALITY & PERCEPTION

In a three country study on various psychological scales including the Dark Triad, Attachment, and Personality, participants (equally distributed across Japan, the US, and Canada) completed the Dirty Dozen (12-item measure of the Dark Triad: narcissism, psychopathy, Machiavellianism). The top 5% of these scores (N= 729) were selected to create a profile of high Dark Triad individuals. In general, the top 5% were men (67%) in their mid-thirties from the US (42%). Gender differences in Dark Triad scores were significant for 95% of the sample but these differences disappeared in the top 5%. While the top 5% were a decade younger than the other 95%, they were married more often. The top 5% had and wanted fewer children. Most interestingly, the top 5% routinely rated themselves as higher on all scales; attachment, Big 5, risk-taking, and impulsivity. Analyses are ongoing, particularly to investigate survey-taking behaviors in high DT individuals.

*Buss, David M. (University of Texas, Austin; dbuss@austin.utexas.edu); Baca, Paola; Costello, William; Hahnel-Peeters, Rebecka; & Schmitt, David P.*

**Do Mind-Reading Adaptations Possess Sex-differentiated Design Features?**

SESSION #11: MIND THE GAP: ERRORS IN CROSS-SEX MIND-READING [SYMPOSIUM]

Theory of Mind (ToM), cognitive abilities to infer beliefs and desires, emerges reliably at 3-4 years. Theories of ToM posit domain-general cognitive abilities, lacking specification of content; specific desires have no privileged status as inferential targets. An evolutionary perspective posits that inferences about others' minds are somewhat specialized, targeting specific desires and emotions. Adolescent male and female minds differ in sexual desires. Has selection favored different inferences when mind-reading the desires of males and females? One hypothesis posits accurate sex-differentiated cross-sex mind-reading, facilitating successful cross-sex interactions such as courtship. A second posits adaptive inferential biases, analogous to men's sexual over-perception bias; biases function to minimize costly errors, facilitating specific sexual strategies, such as ones of sexual boldness or sexual coercion. A third hypothesis is that selection has not favored adaptive cross-sex mind-reading; biases may occur because individuals erroneously use their own desires as a default for generating inferences about the other sex. We describe preliminary studies testing these competing hypotheses in domains with well-established psychological sex differences--desire for sexual variety and emotional reactions to sexual violence. Discussion focuses on a radical revision of theories of ToM, implications for cross-sex mind-reading, and benefits for reducing conflict between the sexes.

*Byrd-Craven, Jennifer (Oklahoma State University, jennifer.byrd.craven@okstate.edu); Short, Tori; Duarte, Krystal; Wood, Erin E.; & Criss, Michael*

**Biological underpinnings and protective factors: Links between developmental social adversity and adaptive calibration of the stress response**

SESSION #9: LIFE HISTORY II

Stress response systems are sensitive to adversity during development as they calibrate outcomes that reflect trade-offs between current and future health. In a series of studies investigating the impact that the type of adversity experienced during development has on the diurnal and acute stress system responding, we show that interpersonal trauma, discrimination, and neighborhood violence are most powerful predictors of altered stress responses. Specifically, rejection/discrimination experiences were related to lower cortisol reactivity and greater alpha-amylase responding to acute laboratory stressors, and neighborhood violence was associated with altered diurnal cortisol patterns. In contrast, high quality parental relationships buffered the impact of adversity on negative health outcomes, but only for ethnic minority participants. Finally, stress (cortisol and sAA) and testosterone responses were differentially associated with a laboratory aggression task for those who experienced social adversity during development. These series of studies are among the first to take a life history approach to understanding how the stress response systems work in conjunction with each other and influence gonadal and immune responses to social adversity, allowing for a greater insight into the biological underpinnings between adversity and health disparities.

*Caldwell-Harris, Catherine (Boston University, charris@bu.edu)*

**Life history theory and the explore-exploit dilemma illuminate sensitive-period effects in second language learning**

SESSION #9: LIFE HISTORY II

Life history theory can explain sensitive-period effects in second language acquisition. Interviews and language tasks were conducted with 80 Russian-English and Spanish-English adults aged 18-56, who immigrated at varied ages. Those with highest ability in both of their two languages had immigrated between ages 8 and 16. Earlier immigration was associated with high proficiency in only the majority (new) language. Those who immigrated as adults learned the majority language but retained dominance in their original language. This "immigrant sweet spot" reflects a cost-benefit analyses. Investing in 2 languages maximizes fitness-related outcomes for immigrant children. By ages 8-16, the first language (L1) has been learned to a level where jettisoning it wastes prior effort. In addition, retaining L1 preserves ingroup relationships. Adult immigrants may desire to learn the new language, but hours required for language learning pose prohibitive opportunity costs, in line with the explore/exploit dilemma. The result is that many adult immigrants curtail their language learning expectations. The sensitive period hypothesis proposes that childhood prior to puberty is the period of heightened sensitivity to language input. This classic idea in psychology needs to be rethought in line with how the environment, social support, and learning goals change over the lifespan.

*Chachkes, Talia (University of Texas at Austin; tchachkes@utexas.edu); Hahnel-Peeters, Rebecka K.; & Buss, David M.*

**Women's Defenses Against Men Displaying Atypical Behaviors**

SESSION #2: VIOLENCE AND AGGRESSION

Sexual violence has been described as the most significant human rights violation in the world due to its ubiquity across cultures and the costs imposed on its victims and secondary victims (Buss, 2021). Sexual violence is an important facet of our ancestral environments persisting throughout human evolutionary history. Therefore, women are hypothesized to have evolved psychological mechanisms motivating avoidance of—and mitigation of costs during and after—sexual victimization. The current study tests the hypothesis that women's hypothesized psychological protections have features to (1) detect, (2) track atypical or non-normative behavior, and (3) defend against individuals perceived as unpredictable or potentially aggressive following the display of these non-normative behaviors. The current study uses

behaviors associated with individuals who have autism spectrum disorder (ASD) as a prototypical example of non-normative, atypical behaviors. We predicted that women will self-report more frequent use of preventative defense tactics against potential aggressors displaying behavioral traits associated with ASD compared to potential aggressors not displaying behavioral traits associated with ASD in a forced-choice task. We also examine how the knowledge of behaviors associated with ASD mediates participants' likelihood of reported defenses against individuals displaying behaviors associated with ASD.

*Choi, Minyoung (University of California, Irvine; m.choi@uci.edu); Sng, Oliver; & Suh, Eunkook M.*

**Disease prevalence predicts variability in determinants of life satisfaction: Social versus financial resources**

SESSION #11: PATHOGENS

People seek a satisfying life – but why? We propose that life satisfaction is an indicator of whether one is currently engaging in adaptive strategies in a given ecology. In this study, we focused on disease prevalence amongst various ecological conditions. Social interactions bring us considerable benefits but also pose a risk of infectious diseases. Given the increasing costs of social interactions under disease-prevalent ecologies, we hypothesize that positive social relationships would be less related to life satisfaction as behavioral immune systems downregulate affiliation motives in disease-prevalent areas. On the other hand, given that money may function as a backup for social relationships, we also predict that financial resources would be associated more strongly with life satisfaction under a greater disease burden. A series of studies supported our hypotheses. In Study 1, we found that in nations with greater disease prevalence, social trust becomes less associated with life satisfaction, whereas financial satisfaction becomes more associated with life satisfaction. We also found that the pattern still exists at an individual level – people who perceive greater disease threats from COVID-19 (Study 2) or in their chronic environments (Study 3) were more likely to link financial resources to overall life satisfaction (vs. social relationships).

*Clark, Cory (University of Pennsylvania, cjclark@sas.upenn.edu)*

**Evolutionary Psychology and Its Haters**

SESSION #10: MATING V

Qualitative interviews (n=41) were used to generate a quantitative survey of U.S. psychology professors' (n=468) views on research taboos. There was overwhelming agreement that the most taboo conclusions in psychology are those involving evolved differences between groups (e.g., that men and women evolved different psychological characteristics). Additionally, we found: (1) professors radically disagreed on the truth status of 10 candidate taboo conclusions–for each conclusion, some professors reported 100% certainty in the veracity and others 100% certainty in the falsehood; (2) professors who saw the claims as truer were likelier to self-censor, a pattern that inevitably biases professional discourse and perceived scientific consensus toward rejecting controversial conclusions (and thus, especially conclusions in evolutionary psychology); (3) almost all professors were worried about social sanctions if they were to express their personal beliefs about these claims; (4) a majority of professors opposed suppressing scholarship and punishing scholars based on moral concerns about research conclusions; and (5) a majority was very contemptuous of peers who petition to retract papers on moral grounds. Evolutionary psychology is and will continue to be particularly controversial in psychology, and though most professors privately support publishing controversial claims, they fear their peers who do not and so will not say so publicly.

*Colarelli, Stephen (Central Michigan University, colar1sm@cmich.edu); Lim, Amy; Liu, Xiao-xiao; Li, Norman; Wei, Liqun; Tsai, Ming-Hong; & van Vugt, Mark*

**Effects of Evolutionarily Novel and Natural Stimuli on Creativity: An Evolutionary Mismatch Framework**

SESSION #6: EVOLUTIONARY MISMATCH

How might natural and evolutionarily novel stimuli compare in their effects on creativity? Studies suggest that nature may stimulate creativity with its restorative qualities. Nature often activates positive affective responses, producing a cognitive state of fascination, which is involuntary and effortless, allowing the mind to rest and wander. Yet, little is known how natural stimuli compare with evolutionarily novel stimuli, such as modern built environments and abstract art. Most people now live and work in urban environments, with their arrays of pressing stimuli and dangers. These environments require sustained and directed attention. This suppresses competing cognitive processes and depletes mental resources—resulting in the use of simpler cognitive strategies that inhibit creative thinking. Without the restorative effects offered by nature, the mind is unlikely to enjoy a mental breather to produce creative thoughts. Abstract art, on the other hand, is a wild card. Although evolutionarily novel, its benign uniqueness may stimulate creativity. In three studies – a lab experiment, a field study, and a longitudinal field experiment – we compared the effects of natural versus built environments, as well as abstract art in our third study. Natural environments and abstract art were associated with greater creative performance than built environments.

*Conroy-Beam, Daniel (University of California, Santa Barbara; dconroybeam@ucsb.edu); Patton, John Q.; Goetz, Cari D.; & Lukaszewski, Aaron W.*

**Modeling mate choice in a small-scale community: Applying couple simulation in Conambo, Ecuador**

SESSION #8: DISPATCHES FROM SOUTH AMERICA: INSIGHTS FROM STUDIES IN ECOLOGICALLY DIVERSE COMMUNITIES [SYMPOSIUM]

Most human mate choice research occurs in large-scale, urban, industrial populations. It is unclear to what extent lessons learned from such populations reflect generalizable features of human mating psychology as opposed to localized responses to the demands of these historically unusual environments. Here, we use couple simulation, an agent-based modeling technique, to compare models of mate choice across both a U.S. sample (n = 1,678) and a sample of k = 15 couples from Conambo, Ecuador—a relatively remote community of horticultural-foragers in the Ecuadorian Amazon. Participants in Conambo completed a ranking task in which each participant ranked each opposite-sex adult in the community in terms of their quality as a spouse. We used these rankings to simulate the mating market in Conambo under alternative models of mate choice. We find that these models are able to reproduce Conambo marriages at a high degree of accuracy and perform comparably across both the Conambo sample and U.S. samples. These results suggest that at least some aspects of human mating psychology can generalize across large-scale industrialized and small-scale populations.

*Corpuz, Randy (University of Massachusetts, Boston; randy.corpuz@umb.edu)*

**No evidence of relationship between paternal care and infant testosterone and cortisol measured during mini puberty**

SESSION #7: ENDOCRINOLOGY I

Infant testosterone (T) surges within the first 2-3 months of life. This T surge (“mini puberty”) is important for brain development. However, little is known about the function of this spike in T. A sizable portion of the literature on developmental programming has focused only on the HPA axis (i.e., cortisol) and the influence of parental caregiving on HPA activity. The degree to which variation in parental care

might also be related to systematic changes in the HPG axis is an open question. Two questions arise: (1) Can the variability of infant T during mini puberty be predicted by levels of parental caregiving?; (2) Is there a relationship between the HPA (cortisol) and HGA (testosterone) axes specifically during mini puberty? In a U.S. sample of first-time fathers, saliva samples were collected from infants at approximately 90 days postnatal and swabs were assayed for T and cortisol. We used an experience sampling method (ESM) that gathered data on paternal time allocation. In separate models, paternal care could not predict variance in infant cortisol, T, or the T x cortisol interaction. Infant T was not correlated with infant cortisol. Discussion focuses on the methodological limitations of this study (e.g., sample characteristics) and a broader discussion on potential crosstalk between the HPA and HPG axes in the months immediately following parturition.

*Cosmides, Leda (University of California, Santa Barbara; cosmides@ucsb.edu); Barbato, Maria Theresa; Sznycer, Daniel; & Guzmán, Ricardo*

**A moral tradeoff system produces intuitive judgments that are rational, coherent, and strike a balance between conflicting moral values**

SESSION #11: MORALITY

Hominin social life routinely created moral dilemmas. For many, striking a balance between two competing moral obligations by partially satisfying both (a compromise judgment) would have promoted fitness better than neglecting one to fully satisfy the other (an extreme judgment). Making adaptive judgments required a moral tradeoff system (MTS): a cognitive system that weighs the conflicting moral values, and uses the resulting representation to identify, from the available solutions, the one that is most right (Guzmán et al., PNAS 2022). We drew on rational choice theory to develop a cognitive model of how a well-designed MTS should work; it was tested using revealed preference methods and a sacrificial moral dilemma. People indicated which option was morally right across 21 scenarios that varied lives saved per sacrifice. Many people made compromise judgments, contradicting an influential dual process model. Moreover, their judgments satisfied the axioms of rational choice, no matter how many compromise judgments they made. This highly improbable result cannot be produced by deliberative reasoning; it is the signature of an optimizing algorithm. As the MTS model predicts, judgments were intuitive, yet rational: People consistently identified the resolution that is most right, given how their minds weighed the competing moral values.

*Costello, William (University of Texas at Austin, williamcostello@utexas.edu); Baca, Paola; Hahnel-Peeters, Rebecka; & Buss, David*

**Adaptive Errors and Accuracies: Sex differences in Cross Sex Mind Reading of Sexual Desires**

SESSION #11: MIND THE GAP: ERRORS IN CROSS-SEX MIND-READING [SYMPOSIUM]

Sexual psychology contains some of the largest and most replicable sex differences in all psychology. However, important differences regarding cross-sex mind reading are not yet fully understood. We argue errors in cross-sex mind reading may result from evolved adaptive inferential biases, such as men's sexual over-perception bias. These adaptive biases could evolve to minimize costly errors or to facilitate specific sexual strategies, such as sexual boldness. The current study aims to replicate, and expand upon, unpublished data from Schmitt and Buss (1996, 1998) which suggests that men tend to (1) overestimate the number of sexual partners women desire, (2) underestimate the length of time women require to pass before wanting to have sex, and (3) overestimate the ease with which women report they can have sex without love. In contrast, women were found to be more accurate in their perception of men's desires. To our knowledge, these findings have never been formally examined, and would provide novel contributions to the theory of mind, evolutionary and sexual psychology literatures. Understanding sex differences in perceptions of the opposite sex's sexual psychology is important in

reducing sexual conflict. Data will be collected before the 2023 conference of the Human Behavior and Evolution Society.

*Coventry, Ashley J. (University of California, Santa Barbara; ashleycoventry@ucsb.edu); Walter, Katy V.; Gelbart, Benjamin; Conroy-Beam, Daniel; & German, Tamsin*

**Preferences and Polyamory: Mapping Ideal Mate Preferences for Concurrent Partners**

SESSION #7: MATING II

While most mate preference research has focused exclusively on monogamous mating, concurrent, non-monogamous relationships have occurred in most cultures throughout human history. It is unclear how existing research on mating psychology and ideal preferences would apply when people are presented the opportunity to take on more than one long term, romantic partner concurrently. Thus, across two studies, we examined ideal preferences for two concurrent partners. Specifically, we assessed whether, when searching for two concurrent partners, people attempt to independently maximize the mate value of each partner or search for partners who fill distinct, compensatory niches. In study 1, using a standard mate preference questionnaire, a k-means cluster analysis identified three distinct ideal partner types: "Attractive and Good in Bed"; "Well-Rounded"; and "Smart and Wealthy". Furthermore, whereas the plurality of participants maximized across both partners, many participants also expressed compensatory preferences—albeit in sex differentiated ways. Study 2 largely replicated these results using a budget allocation paradigm. These results expand our understanding of concurrent mating in humans and offer a new way to examine ideal partner preferences. Furthermore, these results shed light on design features of mate preference psychology that are not revealed in exclusively monogamous relationships.

*Cunningham, Katja (Texas Christian University, katja.cunningham@tcu.edu); Gassen, Jeffrey; Mengelkoch, Summer; Proffitt, Randi; & Hill, Sarah*

**The Relationship Between Early Life Stress and Dysregulation of the Satiety Hormone GLP-1**

SESSION #6: LIFE HISTORY AND KINSHIP

Much research finds links between unpredictable, low socioeconomic status (SES) childhood environments and the development of obesity and cardiometabolic disease in adulthood. Although exposure to unpredictable, low SES environments in childhood is associated with eating in the absence of hunger, little is known about the impact of these early life environmental exposures on hormonal regulators of eating behavior. The current research examined the relationship between childhood SES, unpredictability, and changes in each satiety hormone glucagon-like peptide-1 (GLP-1), hunger hormone ghrelin, and self-reported hunger following the consumption of a metabolically-tailored nutritional shake. Fasting participants (n = 50) consumed a shake constituting 40% of their daily caloric need, and had hunger and hormone levels evaluated every 30 minutes. Following the shake and a later food cue, participants were presented with an eating opportunity to measure caloric intake. Results revealed that unpredictable, low SES childhood environment was associated with a greater increase in GLP-1 over time, and a drop in GLP-1 following the food cue. This drop in GLP-1 was associated with greater caloric intake during the eating opportunity. Together, these results suggest that early life environments may have a lasting impact on the hormonal milieu that regulates energy intake, in particular, GLP-1.

*David-Barrett, Tamas (University of Oxford, tamas.david-barrett@trinity.ox.ac.uk)*

**World-wide Evidence for Gender Difference in Sociality**

SESSION #3: SOCIALITY

One of the most contested questions about human behaviour is whether there are inherent sex or gender differences in the formation and maintenance of social bonds. On one hand, female and male

brains are structurally almost identical, and while there are sex differences in the endocrine system, these are small, and it is well established that much of gendered identity and behaviour is learned. On the other hand, sex differences in some aspects of social behaviour have deep evolutionary roots and are widely present in non-human animals. This observational study recorded the frequency of same-aged, adult human groups appearing in public spaces through 2636 hours, recording group formation by 1.2mn people via 170 research assistants in 46 countries across the world. The results show (a) a significant sex/gender difference in same-sex-same-age frequency, in that ~50% more female-female than male-male pairs are observed in public spaces globally, and (b) that despite regional variation, the pattern holds up in every global region. This is the first study of sex-gender difference in dyadic social behaviour across the world on this scale, and the first global study that uses direct rather than internet-based observations.

*Del Giudice, Marco (University of New Mexico, marcodg@unm.edu)*

**A general architecture for motivation, emotion and personality**

SESSION #5: PERSONALITY

Current mainstream models of personality are structural rather than functional, and are built "from the top down" with factors analysis or similar techniques. The alternative approach, which is gathering steam in evolutionary psychology, is to start from a functional/computational theory of psychological adaptations in order to reconstruct personality "from the ground up". I contribute to this project by presenting a general, abstract architecture of the psychological mechanisms that underlie motivation (and, by extension, personality). The General Architecture of Motivation (GAM) is based on a hierarchical coordination model of motivational systems, emotions, and moods, integrated with two other crucial components: a general-purpose system for the pursuit of instrumental goals, and downstream mechanisms that regulate directional tendencies toward approach and avoidance. The GAM clarifies the interplay between different kinds of "motivation" that have been typically addressed separately in the previous literature; highlights the central role of emotions as the link between stable evolved motives and flexible, moment-to-moment goals of the organism; and offers an adaptable conceptual framework for the evolutionary study of personality.

*Del Ponte, Alessandro; Delton, Andrew W. (Stony Brook University, andydelton@gmail.com); & DeScioli, Peter*

**Altruism and Spite in Politics: How the Mind Makes Welfare Tradeoffs About Political Parties**

SESSION #3: COOPERATION III

How much will people sacrifice to support or oppose political parties? Extending previous work on the psychology of interpersonal cooperation, we propose that people's minds compute a distinct cost–benefit ratio—a welfare tradeoff ratio—that regulates their choices to help or hurt political parties. In two experiments, participants decide whether to financially help and hurt the inparty and outparty. The results show that participants were extremely consistent (> 90%) while making dozens of decisions in a randomized order, providing evidence for tradeoff ratios toward parties. Moreover, participants' ratios correlated in the expected directions with partisanship, political ideology, and feelings of enthusiasm and anger toward each party, corroborating that these ratios are politically meaningful. Generally, most participants were willing to sacrifice at least some money to help their inparty and hurt the outparty. At the same time, a sizable minority hurt their inparty and helped their outparty. Welfare tradeoff ratios push our understanding of partisanship beyond the classic debate about whether voters are rational or irrational. Underneath the turbulent surface of partisan passions hide precise calculations that proportion our altruism and spite toward parties.

*DeLecce, Tara (Oakland University, tdelecce@oakland.edu); Shackelford, Todd K.; & Zeigler-Hill, Virgil*

**Investment in romantic partners positively predicts ejaculate quality**

SESSION #7: MATING II

Previous research indicates that heterosexual men who are more satisfied with their romantic relationships rate their partner as more attractive, report that other men find their partner more attractive, are more interested in copulating with their partner, and perceive that their partner has greater interest in copulating with them. Furthermore, previous research indicates that greater investment in a partner correlates with greater relationship satisfaction. However, such findings have relied on self-report surveys, and none have used a physiological measure such as ejaculate quality, which could serve as a marker of both attraction to one's partner and partner investment (via investment in high-quality ejaculates). Among 45 couples between the ages of 18 and 35 years who completed self-report surveys on their relationship dynamics and who produced six ejaculate samples across a 45-day period, men's investment in their partner positively predicted ejaculate quality in terms of semen volume and the quantity of progressive motile sperm. These findings remained significant after controlling for covariates that affect ejaculate quality (e.g., duration of abstinence before sample production). Discussion situates the current results with previous literature addressing the link between partner investment and relationship satisfaction, and suggests directions for future research.

*Demiralp, Melis (University of Texas at Austin; melisdemiralp@utexas.edu); Hahnel-Peeters, Rebecka K.; Crosby, Courtney L.; Durkee, Patrick K.; Buss, David M.; Batres, Carlota; Kitema, Harrison; Yahiiaiev, Illia; Malysheva, Karine; Trofimov, Andrii; Samekin, Adil; Rezvushkina, Tatyana; Seisembekov, Telman; Dontsov, Artyom; Abdramanov, Symbat; Burtsey, Egor; Vykhodtcev, Sergei; Mikhalchenko, Kseniya; Giosan, Cezar; Egorov, D.; Gorbanescu, Adrian; Mincu, Cornel; Rotarescu, Violeta; Cretu, Zenu; Pisitsungkagarn, Kullaya; Jarukasemthawee, Somboon; Zemojtel-Piotrowska, Magdelena; & Sawicki, Artur*

**The Universal Role of Disgust in Sexual Moralization Across 19 Countries**

SESSION #9: SEX DIFFERENCES & GENETIC CONFLICT

Disgust has been hypothesized to motivate avoidance of pathogen-related selection pressures. Physical reactions of disgust including scrunching of the face and closing of the eyes and mouth suggest design features promoting pathogen avoidance. Previous literature hypothesizes that moral and sexual disgust hijacks disgust adaptations. Specifically, individuals report sexual and moral disgust when imagining themselves or others engaging in incest, necrophilia, and bestiality. Moral condemnation of incest, necrophilia, and bestiality are understood through related selection pressures. Necrophilia and bestiality may result in exposure to pathogens, and incest may result in increased rates of deleterious genetic mutations. The current study is the first to examine the hypothesis cross-culturally. We test the predictions that (1) incest, necrophilia, and bestiality are universally condemned and (2) individuals' ratings of sexual disgust positively correlate with their condemnation of incest, necrophilia, and bestiality. Data were collected from 19 countries (N=7,964) spanning across most continents using Amazon's Mechanical Turk, collaborations with cross-cultural researchers, Adriana, and Prolific. Participants responded to a series of surveys regarding sexual morality, religiosity, and sexual disgust. Should we find evidence for the cross-cultural condemnation of incest, necrophilia, and bestiality, this study may provide evidence for moralization hijacking disgust adaptations.

*Detert, Laurel & Case, Charleen (University of Michigan, casecr@umich.edu)*

**Parenting our Protégés: Mentorship and the Parental Care System**

SESSION #7: KIN PSYCHOLOGY SHAPES BEHAVIOR TOWARDS NON-KIN (AND KIN) [SYMPOSIUM]

Humans share a collection of fundamental motives that influence the way we feel about, think about, and behave toward conspecifics. The kin-care motive is responsible for our tendency to treat family members differently than we treat other members of our social world. We explore whether and how kin-care motives influence behavior among colleagues, absent genetic relatedness. Specifically, we elucidate the role the parental care system plays in mentorship, a common workplace partnership that shares many features with caregiving relationships. We find that those assigned to a mentor role (vs. a mentee role, Exp. 1; vs. other professional roles, Exp. 2) tend to select neotenous (i.e., baby-faced) work partners over mature-faced ones (Exp. 1-2). Those assigned to mentor also exhibit higher levels of parental care motivation (reflecting one's inclination to nurture and protect actual infants), but not heightened motives for self-protection, status, affiliation, mate acquisition, or mate retention (Exp. 1-2). Moreover, mentors assigned to a baby-faced (vs. mature-faced) mentee demonstrate greater intentions to engage in effortful mentoring behaviors and to provide financial support (Exp. 3). These and ancillary findings suggest that mentoring can activate the kin-care motive, highlighting a potentially consequential overlap between our evolved parenting motives and workplace mentorship dynamics.

*Durante, Kristina M. (Rutgers Business School, kdurante@business.rutgers.edu)*

**How to Communicate to Engage the Public**

SESSION #9: COMMUNICATING EVOLUTIONARY SCIENCE TO THE PUBLIC: HOW TO PITCH, PARAPHRASE, AND PERSONALIZE SCIENCE TO MAKE IT APPEALING TO A BROAD AUDIENCE [SYMPOSIUM]

Evolutionary-informed scholarship produces some of the most groundbreaking findings in psychological science. These findings have critical implications for organizations, public policy, medicine, well-being, and beyond. Yet, outside of small academic circles, most people have never heard about the work being done by evolutionary psychologists, or people do not clearly understand how it relates to their everyday life. Effectively communicating scholarship to the public is not only beneficial to individuals and industry at large but is important to advancing your own career. Public engagement does not mean knowing journalists and talk show hosts. It means knowing exactly how to communicate the core of your idea. This talk will cover a few simple tools to communicate your work in a way that people pay attention to, understand, remember, care about, and share.

*Eisenbruch, Adar (Marist College, adar.eisenbruch@marist.edu); Smith, Kristopher; Workman, Clifford; Panasevich, Nicholas; von Rueden, Christopher; & Apicella, Coren*

**US participants accurately assess hunter-gatherers' hunting ability from a single face photograph**

SESSION #5: PERCEPTION II

People automatically make trait inferences from faces that affect a variety of judgments and behaviors, though the accuracy of these inferences is questionable. Recent research has found that people (especially men) exhibit a social preference for "ancestral productivity," i.e. favorable treatment towards others who they perceive as more capable hunter-gatherers. This raises the question of whether these perceptions of "ancestral productivity" are accurate. In three studies, we tested whether Americans can accurately assess foraging ability from the face alone. We used datasets from small-scale societies (two from the Hadza and one from the Tsimane; total N = 191) in which individuals were photographed and evaluated by their peers on their foraging ability. We then showed those photographs to US MTurkers (total N = 604), who evaluated the individuals for ancestral productivity. We found that MTurkers' perceptions of men consistently tracked their peer-evaluated hunting ability (overall r = 0.31), suggesting that naïve perceptions of men's ancestral productivity from a face photo alone are accurate. MTurkers' perceptions of women's ancestral productivity inversely correlated with their peer-evaluated

gathering ability, though women were only represented in one of the datasets. We discuss potential mechanisms and implications for research on social perception.

*Ellis, Bruce J. (University of Utah, bruce.ellis@psych.utah.edu); Sheridan, Margaret A.; Belsky, Jay; & McLaughlin, Katie A.*

**Why and How Does Early Adversity Influence Development? Toward an Integrated Model of Dimensions of Environmental Experience**

SESSION #6: LIFE HISTORY AND KINSHIP

Two extant frameworks—the harshness-unpredictability model and the threat-deprivation model—attempt to explain which dimensions of adversity have distinct influences on development. These models address, respectively, why, based on a history of natural selection, development operates the way it does across a range of environmental contexts, and how the neural mechanisms that underlie plasticity and learning in response to environmental experiences influence brain development. Building on these frameworks, we advance an integrated model of dimensions of environmental experience, focusing on threat-based forms of harshness, deprivation-based forms of harshness, and environmental unpredictability. This integrated model makes clear that the why and the how of development are inextricable and, together, essential to understanding which dimensions of the environment matter. Core integrative concepts include directedness of learning, multiple levels of developmental adaptation to the environment, and tradeoffs between adaptive and maladaptive developmental responses to adversity. The integrated model proposes that proximal and distal cues to threat-based and deprivation-based forms of harshness, as well as unpredictability in those cues, calibrate development to both immediate rearing environments and broader ecological contexts, current and future. We highlight actionable directions for research needed to investigate the integrated model and advance understanding of dimensions

*Espinosa, Matthew (Texas Christian University, m.espinosa@tcu.edu) & Hill, Sarah*

**Adverse Childhood Environments and Slowed Salivary Habituation to Food Stimuli**

SESSION #3: DEVELOPMENTAL

Childhood environments typified by low socioeconomic status (SES) and high unpredictability reliably predict unhealthy eating and obesity. However, the biological mechanisms linking childhood environment and obesity remain unclear. Often exhibited by obese adults, slowed salivary habituation to repeated food stimuli, while perhaps evolutionarily advantageous in harsh and unpredictable environments, presents one possible explanation for the contemporary relationships among childhood environment, unhealthy eating, and early adulthood obesity. Here, we present the results of research examining the relationship between childhood environment and salivary habituation. We hypothesized that individuals from low SES and highly unpredictable childhood environments would exhibit slower habituation to food stimuli, which would lead to greater food consumption, particularly in the absence of hunger. Consistent with this prediction, using the Strongin-Hinsie Peck Method, preliminary results suggest that women from lower SES environments exhibit relatively slower salivary habituation to food stimuli. Specifically, high childhood SES women exhibited a fairly linear decrease in salivary response over time, whereas low childhood SES women exhibited an initial increase in salivary response and then a decrease thereafter. We discuss the potential health implications of these initial findings, as well as our ongoing examination of the relationship between salivary habitation and eating behavior.

*Fernandez, Ana Maria (University of Santiago de Chile, ana.fernandez@usach.cl); Barbato, María Teresa, & Cordero, Belen*

**The adaptive link of jealousy and attachment, but not with closeness or love**

SESSION #8: MATING III

We briefly point out the evidence that attachment is an intrinsic emotional system in primates and humans, having a prosocial function that likely impacted the survival of our species. Correspondingly, jealousy, conceived as a protective system for attachment, seems to be finely tailored to be triggered by very specific threats that endanger attachment, but its association with specific levels of loving and closeness in mating and friendship relationships are not quite straight forward. We present the correlational analyses of these variables in different datasets of young college students (n = 135), dating (n=134) and well established heterosexual couples (n = 202 and 204, respectively), and same sex friends (n = 204). Our results allow for identifying similarities and differences of attachment, love, and relationship closeness with jealousy. We preliminary conclude that there are differences in terms of loving a significant other and the attachment features and individual adopts across their lifetime, emphasizing that jealousy is critical for the protection of love or closeness. Indeed, jealousy is aimed at maintaining the unique features the individual brings to these specific relationships, protecting what makes each other unique and irreplaceable.

*Fessler, Dan*; Merrell, Wilson* (University of Michigan, wmerrell@umich.edu); Holbrook, Colin; & Ackerman, Josh (*denotes equal authorship)*

**Beware the foe who feels no pain: Associations between relative formidability and pain sensitivity in three U.S. online studies**

SESSION #1: PERCEPTION I

Pain both is a critical internal regulator of behavior and constitutes a tactical liability in agonistic conflict. Therefore, information about pain sensitivity should play a functional role in assessments of the formidability of prospective foes or allies. Compared to pain-sensitive individuals, pain-insensitive individuals should be assessed as more formidable, as it would be more difficult to deter the latter from aggressing, and more difficult to motivate them to desist should conflict erupt. Further, knowing that a potential antagonist is armed should lead observers to infer relative insensitivity to pain, as the costs of erroneously presuming that an armed individual is sensitive to pain—and thus is both more vulnerable and less likely to aggress—will generally be higher than the costs of erroneously presuming that they are insensitive to pain, and thus are both less vulnerable and more inclined to aggress. Here, we find support for these predictions in three pre-registered studies conducted with U.S. online crowdsource workers (N=473; N=204; N=301). The association between information regarding pain sensitivity and the process of formidability assessment has implications for a variety of pressing social issues, from the use of excessive force by police, to racial discrimination in the provision of medical care.

*Fieder, Martin (University of Vienna, martin.fieder@univie.ac.at) & Huber, Susanne*

**Genome–Wide heterozygosity/homozygosity is only weakly linked to heterozygosity**

SESSION #4: GENETICS/EPIGENETICS

It has been supposed that genome wide heterozygosity and, particularly, heterozygosity of loci on the so-called major histocompatibility complex (MHC), which is responsible for the recognition of pathogens and the self/non-self, are associated with better health, better resistance to infections and parasites. It has further been speculated that such a potentially beneficial heterozygosity can be detected through facial attractiveness. We therefore investigated on the basis of 713,014 SNPS from ~ 5000 male and female study participants of the Wisconsin Longitudinal Study whether i) genome wide homozygosity/heterozygosity (measured as inbreeding coefficient), ii) genome wide runs of homozygosity, and iii) heterozygosity/homozygosity on the MHC complex are associated with rated indicators of facial attractiveness. For the MHC we found no significant association between heterozygosity/homozygosity and any rating of attractiveness. Genome wide we found a significant

negative association between the average length of homozygous segments as well as the genome wide inbreeding coefficient, respectively, and various indicators of attractiveness. The total variance explained by the different indicators of heterozygosity/ homozygosity, however, is very low, ranging from 0.01% to 0.13%. These findings indicate that higher genome wide homozygosity (and thus lower heterozygosity) is only weakly associated with lower attractiveness.

*Figueredo, A.J. (University of Arizona, ajf@arizona.edu); Steklis, N.G.; Peñaherrera-Aguirre, M.; Fernandes, H.B.F.; Cabeza de Baca, T.; Salmon, C.A.; Hernández Chaves, M.G.; Acón Araya, S.F.; Pérez-Ramos, M.; Frías Armenta, M.; Corral Verdugo, V.; Aragonés, J.I.; & Sevillano, V.*

**The Adapa Tablets and the Tuxtla Glyphs: Generalizability between Cultures and Individual Differences within Cultures**

SESSION #5: PERSONALITY

We examined how human emotional empathy, cognitive empathy, and harm avoidance toward different kinds of nonhuman animals are shaped by human-nonhuman animal coevolutionary histories. We compared the explanatory power of alternative categorization frameworks for classifying these attitudes across several cross-cultural samples. The results supported a general scheme organized into three superordinate categories reflecting concentric circles around our own: (1) Kith & Kin Animals; (2) Domesticated Animals; and (3) Wild Animals. We also tested several individual differences variables: (1) dummy variables representing the cross-cultural study sites sampled; (2) participants' sociodemographic information; (3) a developmental Animal Exposure factor; (4) a latent variable measuring "Dark Triad" traits; (5) an Interpersonal Aggression factor; (6) a KithKin-Empathy factor, measuring emotional and cognitive empathy towards Kith-Kin animals; (7) a Domestic-Empathy factor, measuring emotional and cognitive empathy towards Domestic animals; (8) a Wild-Empathy factor, measuring emotional and cognitive empathy towards Wild animals; and (9) a Harm Avoidance factor, which was not disaggregated by the three concentric circles as they were found to be highly correlated. The results supported the Concentric Circles Model as well as confirming several previous findings about the role of Dark Triad traits and interpersonal aggression in willingness to harm nonhuman animals.

*Fisher, Maryanne L. (Saint Mary's University, mlfisher.99@gmail.com); Zinck, Mackenzie; Savoie, Jessica; Link, Jaedan; & Conrod, Arianna*

**Mating Can Get Dirty: Women's Reports of Mating Rivals and Past Mates on a Gossip Website**

SESSION #4: INTRASEXUAL COMPETITION

One's reputation may advertise their worth or suitability as a potential mate, with gossip serving as a vehicle for sharing this reputational information. Here we examine how men's and women's reputations are described via anonymous posts on the gossip website, The Dirty. Using a qualitative analysis, trained blind coders performed thematic analysis of 25 posts about men and 25 for women for each of the five most populous cities in Canada and the United States (N = 500). We support our prediction that posts are derogatory about men's characteristics key to women's mate preferences: personality, emotional commitment, resource possession, and sexuality. Derogations of men's personality were most common, followed by their ability and willingness to commit to a relationship, with derogations of resource possession and sexuality least common. Further, we support our prediction that posts derogate women's sexuality, personality, and mothering qualities, and (unpredicted) resource extraction, mate poaching, and substance use. Sexuality was most mentioned, followed by personality; resource extraction, mate poaching, and substance use were equally derogated, and mothering qualities least mentioned. We suggest women share reputational information about men to decrease the target's mating access to other women, and about other women as part of intrasexual mating competition.

*Frederick, David (Chapman University, enderflies1@aol.com)*

**Confident or Hesitant? Men's Beliefs About Their Testosterone-Linked Traits Predicts Their Courtship Behaviors**

SESSION #8: MATING III

Evolutionary psychologists have posited that sexual selection processes caused females to evolve preferences for testosterone-linked traits such as muscle mass and voice pitch. Many of the traits socially perceived as "masculine" are associated with testosterone level and/or are sexual dimorphic and are represented as prestigious in the popular media. These social expectations can lead to body dissatisfaction and lower confidence when seeking mates. In Study 1 (N = 3712), participants reported their confidence in dating situations (e.g., comfort approaching someone they don't know to hit on them) and their satisfaction with their weight and muscularity. In Study 2 (N = 760), participants reported their dating confidence, their satisfaction with 24 sexually dimorphic traits (e.g., facial masculinity), and whether they perceive themselves as far below average to far above average on these traits compared to other men. In Study 1, muscularity and weight satisfaction were both notable predictors of dating confidence in multiple regressions (Betas = .27, .32). In Study 2, penis size and upper body muscularity were the strongest predictors of dating confidence, and no other traits exceeded betas of .10 (e.g., facial masculinity, lower body muscularity, height). This study highlights the importance of examining how dating confidence and body satisfaction might mediate established links between testosterone-linked traits and mating behaviors.

*French, Juliana (Oklahoma State University, juliana.french@okstate.edu); Makhanova, Anastasia; & Meltzer, Andrea*

**Adaptive Calibration of Dyadic Sexual Desire**

SESSION #7: MATING II

Adaptive calibration models suggest that the harshness and unpredictability of people's childhood ecologies can shape their reproductive motivations and behaviors in adulthood. We therefore examined the extent to which people's childhood ecologies adaptively calibrate their dyadic sexual desire. Nevertheless, because female (versus male) sexual desire is presumed to be more sensitive to situational factors, and because hormonal contraceptives alter reproductive hormones that influence female sexual desire, we predicted that adaptive calibration of sexual desire would emerge more strongly for naturally cycling females (versus females who use hormonal contraceptives and versus males). Using a sample of 630 participants (159 males, 203 naturally cycling females, 268 females using hormonal contraceptives), we found that childhood unpredictability was positively associated with dyadic sexual desire among naturally cycling females. This association did not emerge among females using hormonal contraceptives nor among males. These findings add to a growing body of literature suggesting that adult reproductive motivations and behaviors can be calibrated to early childhood ecologies, but they additionally highlight the importance of considering potential moderating factors within adaptive calibration models.

*Fujimoto, Yuma (Research Center for Integrative Evolutionary Science, SOKENDAI, The Graduate University for Advanced Studies, fujimoto_yuma@soken.ac.jp) & Ohtsuki, Hisashi*

**Evolutionary stability of cooperation in indirect reciprocity under noisy and private assessment**

SESSION #3: COOPERATION III

Indirect reciprocity discusses cooperation in large-scale societies, such as human society. In indirect reciprocity, an individual chooses either to cooperate or defect to another who is randomly matched. Then, others update their reputations of the individual. A milestone in evolutionary biology would be

whether or not somewhat rule to give reputations succeeds in preventing the invasion from the other rules and maintaining cooperation within itself. In the public reputation case where all individuals share the reputations of others, the rules called Simple Standing (SS) and Stern Judging (SJ) have been proven to maintain cooperation. On the other hand, in the private assessment case where individuals independently have the reputations of others, whether such rules can maintain cooperation is still unexplored. This study unveils that even under the private assessment, cooperation is evolutionary stable only with SS. This cooperation is because SS can correct mismatches between the reputations of an individual caused by assessment errors. Such a correction is achieved by a certain simplicity in giving reputations. On the other hand, the complexity of SJ cannot prevent an accumulation of errors. These results provide a theoretical insight into the origin of human cooperation.

*Gangestad, Steven (University of New Mexico, sgangest@unm.edu); Dinh, Tran; & Emery Thompson, Melissa*

**Hormonal associations with partnered women's preferences for male dominance and body muscularity: Moderation by extra-pair vs. in-pair attraction**

SESSION #10: ENDOCRINOLOGY II

Do women find muscular and/or dominant men especially sexy when conceptive in their cycles, as reflected by high estradiol and/or low progesterone levels? Recent replication studies yield negative, mixed, or qualified evidence. In a preregistered study with 181 naturally cycling, partnered women (ages 18-35), urinary estradiol and progesterone levels were measured across 4 sessions during a cycle. Repeatedly, women completed two preference tasks, one assessing sexual attraction to videotaped men varying in behavioral dominance/confidence, the other attraction to male upper bodies varying in muscularity. A third task asked women whether, currently, they would be sexually aroused if exposed to attractive male bodily features. Evidence for hormonal effects on preferences was mixed. In exploratory analyses, we examined the moderating role of women's extra-pair (EP) sexual interests, relative to in-pair (IP) sexual interests (as affected by, e.g., attachment to partners and partner sexiness). EP vs. IP interest significantly moderated progesterone effects on preferences across all tasks. When women had high levels of EP, relative to IP, interest, progesterone's effects were robust and negative. But not so when women expressed little EP, relative to IP, interest. Findings provisionally suggest that hormonal effects on women's sexual preferences are systematically conditional, potentially reflecting adaptive design.

*Garcia, Sarai (State University of New York at New Paltz); Longo, Kaitlyn; & Lopez, Sergio*

**Are We Evolved to be Courageous?: A study of the Psychological Correlates of Courage**

SESSION #2: PERSONALITY & PERCEPTION

In the workplace, there are interactions that arise where an individual can make courageous decisions in the face of adversity. Evolutionary risk-taking (see Wilke et al., 2014) seems to be strongly predictive of courageous decision-making, suggesting that perhaps courage is an important evolved feature of the human experience. We hypothesize that individuals can engage in courageous behavior, predicted by psychological correlates. This study examines personality, risk-taking propensity, and resilience as predictor variables for courageous decision-making in the workplace. We presented participants (n=844) with Behavioral Courage Scales designed for this study, along with the Ten Item Personality Inventory (TIPI), Brief Resilience Scale (BRS), and General Risk Propensity Scale (GRiPS). Correlational analyses demonstrated significant positive relationships between courageous decision-making and: extraversion, openness, emotional stability, conscientiousness, agreeableness and risk propensity. These findings suggest that traits such as agreeableness and conscientiousness might influence an individual to demonstrate courageous and altruistic behavior that benefits coworkers, even when it might cause

conflict that brings a net reduction to the benefits of the individual. A perspective of the work environment as analogous to ancestral conditions suggests that an individual's motivations for courageous behavior might reflect an overall awareness of its benefits to the larger group.

*Ge, Erhao (UCL, ucsaege@ucl.ac.uk); Zhi, Cai Rang Dong; Du, Juan; & Mace, Ruth*

**Religiosity and gender bias structure social networks in a Tibetan population**

SESSION #3: SOCIALITY

Many have attempted to explain the evolutionary origins of religion and some suggest that religiosity promotes cooperation, but the empirical works evaluating the links between religious practices and cooperative social networks have been surprisingly few. Whether religious celibacy helps structure local social support remains to explore. Here, we draw on the religiosity and social support network data among residents of an agricultural Tibetan village to evaluate whether people are more likely to establish supportive relationships with religious individuals and consanguineous kin of celibate monks. We also examine the gender-specific correlations between religiosity and personal network characteristics. We found that religious practices foster supporting social relationships overall. Kin of celibate monks enjoys more social acceptance not only by the enhanced probability of having a supportive relationship but also by denser connections among them. Engagement in pilgrimage is associated with larger networks for males but not for females, whereas partaking in daily practice correlates with denser networks for both males and females. Particular religious acts may help individuals gain particular types of social network benefits, but benefits are gender dependent.

*Geary, David C. (University of Missouri, GEARYD@MISSOURI.EDU)*

**Has the Flynn Effect Increased the Magnitude of Human Sex Differences?**

SESSION #9: SEX DIFFERENCES & GENETIC CONFLICT

Sexually selected traits facilitate competition for mates and influence mate choices and are often exaggerated (e.g., size), resulting in sex differences. These traits are also more vulnerable to disruption based on individual health and ecological and social conditions such that sex differences are larger in populations living in favorable conditions and smaller in populations living in poorer conditions. The Flynn effect refers to the cross-generational increase in cognitive performance during the 20th century in developed and developing nations, in part due to improvements in health. In theory, the latter should result in cross-generational increases in the magnitude of sex differences in nations experiencing a Flynn effect or across nations whose populations vary in general health. Indeed, cross-generational increases in men's advantage in height are consistently found in nations experiencing a Flynn effect and cross-national differences vary with population health (e.g., lifespan). Although less definitive, similar patterns are found for men's advantages in spatial abilities and women's advantageous in language and memory abilities. These hypotheses will be outlined, and related evidence presented.

*Gelbart, Benjamin (University of California, Santa Barbara; Bgelbart@ucsb.edu) & Conroy-Beam, Daniel*

**Green-Eyed Monster or Green-Eyed Mind Reader? Jealousy Tracks Future Vulnerability to Infidelity**

SESSION #8: MATING III

Romantic jealousy has long been hypothesized to be an adaptation closely calibrated by cues to infidelity. However, tests of these claims remain limited, and the relationship, if any, between jealousy and a partner's future infidelity risk remains unknown. Here, we use a dyadic, longitudinal design to examine the relationship between jealousy responses to fictitious scenarios at Time 1 and real-world infidelity victimization at Time 2. To do so, we employed a novel jealousy measure in which participants

imagined their emotional responses to scenarios which differed in threat severity. Using multilevel models nesting within dyads, we find a significant association between infidelity victimization at Time 2 and jealousy at Time 1, moderated by threat severity. Whereas both victims and non-victims of infidelity reported comparably high levels of jealousy in high-threat scenarios, victims of infidelity reported experiencing significantly greater jealousy than non-victims in response to low-threat scenarios. The results highlight the importance of distinguishing between jealousy responses to high and low-threat events and suggest that cues to infidelity calibrate one's future sensitivity to jealousy in response to otherwise innocuous scenarios. Importantly, these results support the possibility that romantic jealousy is a functional adaptation designed for protecting valuable relationships from potential interlopers.

*Glowacki, Luke (Boston University, laglow@bu.edu)*

**The Evolution of Peace**

SESSION #10: COOPERATION IV

While some species have affiliative and cooperative interactions between different social groups, humans are likely alone in having durable, positive-sum, interdependent relationships across unrelated social groups. Knowledge about the conditions required for peaceful intergroup relationships is critical for understanding the success of our species. Understanding when and how peace developed in the human lineage requires considering the costs and benefits of both intergroup aggression and cooperation, for oneself, one's group, and one's neighbor. I explore the conditions required for peace, why they are so difficult to achieve, and when we expect peace to have emerged in the human lineage. I argue that intergroup cooperation was a selective force in our species history in the past 300 thousand years. But the preconditions for peace only emerged in the past 100 thousand years and likely coexisted with intermittent intergroup violence.

*Goetz, Stefan (Peace Research Institute Oslo, stegoe@prio.org); Amini Hajibashi, Samira; Hagen, Thomas; & Bartusevičius, Henrikas*

**Do Humans Possess Adaptations for Coalitional Formidability Assessment? Evidence from a Cognitive Experimental Approach**

SESSION #1: PERCEPTION I

Human evolution has been characterized by dyadic aggression. In ancestral conflicts, assessing the strength of an opponent, prior to fighting, was vital. Fighting against a stronger opponent could incur high costs, while deferring to a weaker one could forego high gains. Selection thus likely favored mechanisms for extracting formidability information from ancestrally relevant cues. Research has revealed the existence of such adaptations to dyadic aggression. Here, we examine whether humans are equipped with analogous adaptations to coalitional aggression. We focus, specifically, on coalitional formidability assessment mechanisms, which likely helped avoiding disadvantageous inter-group fights. An evolutionary task analysis suggested that, if such mechanisms exist, then humans should automatically attend to outgroup coalitions (H1), spontaneously determine their size (H2), and do so rapidly (H3) and accurately (H4). We tested the hypotheses using cognitive experimental paradigms—dot-probe, surprise-recall, and dot-enumeration—adapted for online administration. Study 1 revealed no attentional bias toward male coalitions, compared to neutral objects, but improved recall of the number of males, compared to neutral objects. Studies 2–3 are underway (to be presented at HBES), exploring additional stimuli and enumeration performance. This research is part of a larger adaptationist program testing the above and other hypotheses across 30 cultures.

*Grant, Marrissa D. (University of Colorado Boulder, dani.grant@colorado.edu); Loria, Riley; Forster, Daniel E.; McCullough, Michael E.; Lieberman, Debra; & Pedersen, Eric J.*

**Friendship formation and maintenance: A longitudinal study examining the function of gratitude over time**

SESSION #1: COOPERATION I

We propose that the evolved function of gratitude is to motivate the formation and strengthening of mutually beneficial relationships by signaling to another person that they are valued. In previous work, we have highlighted the role of changes in welfare tradeoff ratios (WTRs) in predicting gratitude in experimental contexts (Smith et al., 2017; Forster et al., 2022). That is, gratitude appears to correspond to a beneficiary increasing how much they value a benefactor as a result of the benefactor's actions. The current study tested the role of changes in WTR in predicting gratitude in the context of friendship formation using a 16-week longitudinal design. 101 participants ranked their four closest friends and every two weeks updated their friend rankings, provided measures of WTR and closeness, reported the emotions they experienced in the relationship over the reporting period, and described interactions in which they incurred costs or benefits from their friends' actions. Here we examine how friendship rankings correspond to WTRs toward friends, how WTRs toward friends predict gratitude toward friends, and change in WTRs from week-to-week toward friends predict gratitude in subsequent weeks.

*Hagen, Edward H. (Washington State University, edhagen@wsu.edu); Blackwell, Aaron D.; Lightner, Aaron D.; & Sullivan, Roger J.*

**Homo medicus: the evolution of shamanism**

SESSION #1: THE EVOLUTION OF SCIENCE AND RELIGION AS MEANING-MAKING SYSTEMS (PART 1) [SYMPOSIUM]

The human lineage transitioned to a more carnivorous niche 2.6 mya, which likely increased zoonotic pathogen pressure. Evidence for this increase includes increased zoonotic infections in modern hunter-gatherers and bushmeat hunters, exceptionally low stomach pH, and divergence in immune-related genes. At the same time, the brain, an organ in which immune responses are constrained, began to triple in size. We propose that the combination of increased zoonotic pathogen pressure and the challenges of defending a large body and brain from pathogens selected for intensification of the plant-based self-medication strategies already in place in other primates. In support, there is evidence of medicinal plant use by hominins in the middle Paleolithic, and all cultures today add spices to food, regularly consume psychoactive plant substances that are harmful to parasites, and have sophisticated plant-based medical systems administered by shamans and other healers. We propose that the computational challenges of discovering plant-based treatments, and the consequent ability to consume more energy-dense animal foods and reduce energetically-costly immune responses helped select for increased cognitive abilities. In the story of human evolution, which has long emphasized hunting, healing had an equal role to play.

*Hahnel-Peeters, Rebecka K. (University of Texas at Austin, rhahnel@utexas.edu); Baca, Paola; Costello, William; Schmitt, David; &Buss, David M.*

**Perceptions of Psychological Pain Following Sexual Victimization: Errors in Cross-Sex Mind-Reading**

SESSION #11: MIND THE GAP: ERRORS IN CROSS-SEX MIND-READING [SYMPOSIUM]

The current study examines hypothesized errors in cross-sex mind-reading in the domain of sexual violence. The likelihood of, and costs associated with, sexual victimization are dramatically higher for women compared to men. These costs include—but are not limited to—potential physical injuries, psychological injuries, unwanted or untimely pregnancies, decreases in perceived mate value, and circumvention of a woman's mate choice. Using undergraduate survey data, we tested two competing hypotheses. The byproduct hypothesis that mind-reading errors occur because one's inferences about

the emotional reactions of the other sex are anchored by consulting one's own intuitions. The adaptation hypothesis states that men's underestimation of women's negative emotional reactions to sexual aggression is an evolved 'design feature' that promotes the successful enactment of a sexually aggressive strategy. Specifically, we predict that men who pursue a sexually aggressive mating strategy will dramatically underestimate the negative emotional reaction of women compared to men who pursue a mating strategy of honest courtship. While this would not rule out the byproduct hypothesis, it would keep the adaptationist hypothesis viable as a contender for a subset of men. Data will be collected and analyzed before the HBES 2023 conference.

*Hassan, Anushé (London School of Hygiene and Tropical Medicine, anushe.hassan@lshtm.ac.uk); Spake, Laure; Schaffnit, Susan; Alam, Nurul; Amoah, Abena; Badije, Jainaba; Cerami, Carla; Chvaja, Radim; Crampin, Amelia; Dube, Albert; Jagne, Ahi Y.; Kaye, Miranda; Kotch, Renee; McLean, Estelle; Munthali, Shekinah; Mwalwanda, Lusako; Prentice, Andrew; Rai, Rajesh K.; Zohora, Fatema T.; Shenk, Mary K.; Sosis, Richard; Shaver, John; & Sear, Rebecca*

**Allomothering networks in cross-cultural perspective: who helps mothers and what do they help with?**

SESSION #12: THE EVOLUTIONARY DYNAMICS OF RELIGION, FERTILITY, AND FAMILY

Research shows women rely on cooperation from other individuals to raise children, with most studies focussing on specific allomothers. We expand the evidence base by presenting data on women's allomothering networks in full, from four countries, detailing how many individuals women receive support from, who they are and what types of support they provide. We collected data from 3653 mothers in Bangladesh, the Gambia, India and Malawi, asking women to list all individuals who provided support with finances, food, work, sickness or injuries; emotional support; and childcare. Descriptive analyses detail mothers' support networks in each context. Women receive considerable support from multiple individuals, with variation between contexts. The average number of supporters for all support types is 2.9 (India), 8 (Malawi), 10.3 (Gambia), and 11.1 (Bangladesh); and ranges between 1.5 (India) and 4.9 individuals (Bangladesh) for childcare. Provision of emotional support varies most, with more supporters in Bangladesh and the Gambia than India. Both kin members and unrelated individuals are frequent cooperation partners. We advance understanding of allomothering by demonstrating the width (how many supporters and who they are) and breadth (what they do) of women's cooperative networks, and show support is frequently received from beyond nuclear family members.

*Heiman, Samantha L. (Indiana University Bloomington, samanthalheiman@gmail.com); Claessens, Scott; Ayers, Jessica D.; Guevara Beltrán, Diego; Van Horn, Andrew; Hirt, Edward R., Aktipis, Athena; & Todd, Peter M.*

**Descriptive norms drive cooperative behavior in uncertain situations**

SESSION #10: COOPERATION IV

Social norms play a key role in solving the problem of cooperation, enabling human groups to coordinate the behavior of many individuals in the face of group-wide challenges. Evolutionary psychology has studied the adaptive benefits of norms, but open questions remain regarding the natural emergence of norms within populations and their causal influences on cooperative behavior over time. Previous work has differentiated between injunctive norms, what people ought to do, and descriptive norms, what people are doing. To understand how cooperative behavior emerges and is shaped by changing social norms in a non-experimental setting, we studied mask wearing during the COVID-19 pandemic. Leveraging two years of longitudinal data from the United States (18 time points; n = 915), we tracked reported mask wearing and perceived injunctive and descriptive mask wearing norms as the

pandemic unfolded. Longitudinal trends of norm perceptions and self-reported mask wearing suggested that norms and behavior were tightly coupled. In addition, a random-intercept cross-lagged panel model revealed that perceived descriptive norms, but not perceived injunctive norms, caused future within-person increases in individuals' mask wearing. These findings show that, during uncertain times, cooperative behavior is driven by what others are actually doing, rather than what others think ought to be done.

*Hill, Sarah E. (Texas Christian University, s.e.hill@tcu.edu)*

**Pitching and Writing a Popular Science Book: Communicating Evolutionary Science Without Getting in the Weeds**

SESSION #9: COMMUNICATING EVOLUTIONARY SCIENCE TO THE PUBLIC: HOW TO PITCH, PARAPHRASE, AND PERSONALIZE SCIENCE TO MAKE IT APPEALING TO A BROAD AUDIENCE [SYMPOSIUM]

Communicating science to a broad audience can be challenging. Audiences are impatient and want information presented in tiny, easy-to-digest nuggets. Scientists, on the other hand, know that the devil is in the details and want to be careful to present information in a way that captures all of its nuance. In this session, I will talk about how to balance these conflicting desires when writing a book proposal for a general audience. We will talk about how to conceptualize your book idea in a way that will be interesting to agents, editors, and (eventually) your readers. We will also talk about how to write about the complexities of evolutionary science in ways that make it maximally understandable and meaningful to all who pick up your book. Lastly, I will cover how to help market your ideas to help reach as broad an audience as possible.

*Hodges-Simeon, Carolyn R. (Boston University, crhodges@bu.edu); Albert, Graham; McHale, Timothy; Gaulin, Steven J.C.; Gurven, Michael; Hlay, Jessica K.; & Arnocky, Steven A.*

**The low male voice is associated with better disease resistance**

SESSION #9: MATING IV

The immunocompetence handicap hypothesis (ICHH) contends that testosterone-dependent, masculine traits are honest signals of the bearers' ability to withstand immunosuppression, yet empirical studies testing the ICHH have produced mixed results. The present research addressed the relationship between masculine vocal parameters and immunity in two samples: young adult men from the US and Canada (N = 267) and adolescent males from Bolivia (N = 44). All participants provided saliva samples, assayed for a biomarker of mucosal immunity associated with respiratory disease resistance: secretory immunoglobuilin-A (sIgA). Participants also contributed speech samples, analyzed for two sexually dimorphic aspects of the human voice: 1) fundamental frequency (i.e., perceived pitch; fo) and vocal tract length (VTL; estimated using formant frequencies). Results indicated that lower voice pitch (i.e., fo) and longer VTL were associated with higher sIgA levels, controlling for age and BMI. That is, among both adult and adolescent males living in two different environments, those with more masculine voices showed better mucosal immunity (and therefore disease resistance) than those with less masculine voices. Discussion will focus on the utility of life-history theory versus the ICHH in providing a conceptual framework for understanding the association between testosterone-dependent secondary sexual characteristics and immunity.

*Holbrook, Colin (University of California, Merced; cholbrook@ucmerced.edu); Lopez, Lukas; & Ocampo, Derrick*

**Morality is Relative: Prosocial Aggression Tracks Genetic Relatedness Distinctly From Emotional Closeness**

SESSION #7: KIN PSYCHOLOGY SHAPES BEHAVIOR TOWARDS NON-KIN (AND KIN) [SYMPOSIUM]

As kin qualify for both kin altruism, contingent on degree of relatedness, and reciprocal altruism, contingent on degree of benefits conferred in exchange for help, kin should receive greater prosocial support than friends, in line with what Curry and colleagues (2013) have termed a kinship premium. In four pre-registered studies, we compared anger and inclinations to aggress against transgressors when the victim was framed as oneself (studies 1-4), an acquaintance (studies 1-4), a sibling (studies 1-4), a first cousin (study 4), or a close friend (studies 3-4). Consistent with the kinship premium hypothesis, participants endorsed comparably greater direct aggression on behalf of the self, kin or friends relative to acquaintances, despite reporting substantially greater affiliative closeness to friends. Participants also reported less anger—yet trends toward greater disgust—when victims were acquaintances relative to all other conditions, largely replicating and extending the prior work of Molho et al. (2017). These results will be discussed as they inform both the kinship premium hypothesis and sociofunctional accounts of moral emotion.

*Hong, Ze (Zhejiang University, ze_hong@g.harvard.edu)*

**Ghosts, Divination, and Magic among the Nuosu: An Ethnographic Examination from Cognitive and Cultural Evolutionary Perspectives**

SESSION #5: THE EVOLUTION OF SCIENCE AND RELIGION AS MEANING-MAKING SYSTEMS (PART 2) [SYMPOSIUM]

I present a detailed ethnographic study of magic and divination of the Nuosu people in southwest China and offer a cognitive account of the surprising prevalence of these objectively ineffective practices in a society that has ample access to modern technology and mainstream Han culture. I argue that in the belief system of the Nuosu, ghosts, divination, and magical healing rituals form a closely interconnected web that gives sense and meaning to otherwise puzzling practices, and such a belief system is importantly supported and reinforced by individual's everyday experiences. Contemporary Nuosu people overwhelmingly treat these practices as instruments for achieving specific ends and often entertain considerable uncertainty regarding their efficacy, which may be overestimated for a number of reasons, including the following: (1) the intuitive plausibility of divination for ghost identification and exorcist rituals is enhanced by the belief in the existence of ghosts as a result of abductive reasoning, (2) negative instances (divinatory or healing ritual failures) are underreported, and (3) people's misperception of the probability of uncertain events' occurrence often prevents them from realizing that the efficacies of magical/divinatory practices do not outperform chance. I conclude with some comments on the generalizability of the psychological and social mechanisms discussed.

*Hsu, Kevin (Pennsylvania State University, Abington; khsu@psu.edu); Placide, Beverly; Franklin, Courtney; Ebenezer, Abisha; Yang, Yanjun; & Turnbough, Erica*

**Intergroup contact, identification, and attitudes as predictors of racial preferences in sexual attraction**

SESSION #4: MATING I

Racial preferences in sexual attraction are common and contribute to a same-race bias in assortative mating, given that race is one of the most salient criteria in mate selection. There are three factors with a strong theoretical basis for explaining why people develop racial preferences in sexual attraction: intergroup contact, identification, and attitudes. We examine whether sexual attraction more strongly favors the racial ingroup in individuals who report less contact and identification with a racial outgroup, as well as more negative attitudes toward that racial outgroup. In Study 1, we found that less current contact with and more implicit negative attitudes toward Black people predicted racial preferences in sexual attraction to White versus Black targets in a sample of White heterosexual and gay men. These results suggest that racial preferences in sexual attraction reflect in part an evolved adaptation to avoid

individuals perceived as outgroup members. In Study 2, we will extend these findings to a larger sample of White heterosexual women and men, in addition to examining sexual attraction to White versus East Asian targets. Data collection will be completed by the end of February, so we will be able to analyze data prior to the conference.

*Hubbard, Eric; Shannon, Ollie (Washington State University, ollie.shannon@wsu.edu); & Pisor, Anne*

**Non-kin involvement and child outcomes: Older siblings, but not godparents, predict educational attainment in a rural context**

SESSION #7: KIN PSYCHOLOGY SHAPES BEHAVIOR TOWARDS NON-KIN (AND KIN) [SYMPOSIUM]

Despite increasing evidence of non-kin contributions to cooperative childrearing, explicit investigation of non-kin allomaternal care remains rare, meaning we have little understanding of why non-kin provide care and whether non-kin investment translates into benefits for mothers or children. Here, we examine the role of godparents—kin and non-kin alloparents that often invest in both mothers and children—to investigate whether having a godparent translates into benefits in terms of the godchild's educational attainment. Among adults in two rural Bolivian communities, we find that having a godparent, whether kin or non-kin, and regardless of where they live, does not predict years of education, finishing high school, or pursuing higher education. Instead, having more older siblings predicted educational attainment on all these dimensions. We make recommendations for how field researchers can better assess the impact of non-kin alloparents in future research

*Hübner, Ronald; Lewis, David (Murdoch University, davidlewis@utexas.edu); Al-Shawaf, Laith; Semchenko, Ayten Yesim; & Flores, Jonathon*

**Why are some curves more beautiful than others? Evidence that abstract aesthetic preferences are an incidental by-product of evolved mate preferences**

SESSION #4: MATING I

Hogarth (1753) declared a specific S-shaped line to be the 'Line of Beauty' (LoB). For nearly three centuries, the LoB has profoundly influenced diverse fields. However, virtually no research has investigated (1) whether the LoB accurately captures humans' aesthetic preferences, or (2) why that specific line might appeal to human psychology. Here, we advance and test the hypothesis that people have an aesthetic preference for lines like the LoB as an incidental by-product of cognitive systems that evolved to attend to fitness-relevant morphology. Study 1 replicated the finding that female bodies whose lumbar curvature approximates the biomechanical optimum for dealing with the exigencies of pregnancy are rated as more attractive. In Study 2, we extracted abstract S-shaped lines from these bodies. Participants rated lines derived from bodies with optimal lumbar curvature as more beautiful than lines derived from other bodies. Finally, objective quantitative analysis revealed the LoB to be most similar to the abstract line derived from the body whose lumbar curvature was the closest to the proposed evolutionary optimum. These multifaceted findings highlight the value of the conceptual tool of incidental by-products for understanding psychological phenomena that might seem irrelevant to evolution, and which currently elude explanation.

*Hwang, Joon (Pennsylvania State University, jqh6104@psu.edu) & Shenk, Mary*

**Individual risk preferences shape community-level risk management networks in Matlab, Bangladesh**

SESSION #10: COOPERATION IV

This study investigates how people's social networks in multiple behavioral domains covary with their risk preferences in the context of ongoing market integration in Matlab, Bangladesh. Although sharing is

known to be effective at reducing risk in production and consumption, it remains unclear how individual attitudes toward risk are associated with varying degree of participation in sharing networks. By conducting both social network survey and risk preference experiment on Matlab villagers, this study was able to demonstrate how the aggregation of individual-level risk preferences results in the emergence of community-level risk management networks. Moreover, the association between risk preference and social networks is expected to be mediated by the degree of market integration, as rapid environmental changes induced by market integration might have increased the unpredictability of Matlab people's lives. Applying the generalized linear models (GLMs) and exponential random graph models (ERGMs) to network and experimental data, this study explores how individual risk preferences are shaped as a result of interaction between socioeconomic attributes and the level of market integration (GLM) and how differential risk preferences among individuals contribute to the formation of social networks (ERGM).

*Immel, Bailey (University of California, Santa Barbara; bimmel@ucsb.edu); Sodhi, Shreya; & Liberman, Zoe*

**Children's associations between food choice and nationality**

SESSION #3: DEVELOPMENTAL

Food is cultural. By kindergarten children expect people from their country to eat conventional foods (DeJesus et al., 2019). We ask: Do children have expectations about what people from a foreign country will eat? Across three studies children (4-11 years; total N= 323) sorted familiar foods (e.g., pancakes) and unfamiliar foods (e.g., mbejú) based on whom they believed ate the food: Americans (native) or Vanuatuans (foreign). In a forced choice task (Study 1) and a more open-ended task (Studies 2 & 3), children were above chance at saying that Americans (and not Vanuatuans) would eat familiar foods whereas Vanuatuans (and not Americans) would eat unfamiliar foods. This was not due to mere familiarity or disgust: children reported that no one would eat disgust elicitors (Study 3), even when they were familiar (e.g., moldy strawberries). We also collected data on how much children liked each food and liked people from each country. Preliminary analyses suggest that children's expectations about who would eat each food were related to these two preference measures. Thus, future work could examine whether it is possible to use food choice (e.g., increasing exposure to unfamiliar, culturally novel, foods) to reduce bias.

*Jackson, Joshua Conrad; Wilbanks, Danica (The University of North Carolina at Chapel Hill, danica.j.wilbanks@gmail.com); Bastian, Brock; Watts, Joseph; DiMaggio, Nich; & Gray, Kurt*

**Supernatural Explanations Across the Globe Are More Common for Natural Than Social Phenomena**

SESSION #1: THE EVOLUTION OF SCIENCE AND RELIGION AS MEANING-MAKING SYSTEMS (PART I) [SYMPOSIUM]

Human societies around the globe use supernatural beliefs to explain phenomena. Understanding which kinds of events are most likely to be attributed to supernatural agents can shed light on how people use religion as an epistemic tool. Drawing from the theory of dyadic morality, we predict that supernatural explanations are more common for natural events that lack clear causal agents than for social events. We investigate this question in a global analysis of 114 geographically and culturally diverse societies from the ethnographic record. We document how frequently these societies evoked supernatural beliefs to explain natural and social events. We find that societies more commonly attributed natural events like famine to supernatural agents than social events like warfare. Further, the gap between natural and social supernatural explanations was smaller among more socially complex societies with larger populations. These findings suggest that supernatural explanations may serve to clarify

phenomena that lack clear causal agents, and that supernatural explanations for social events may become more common as social life grows more ambiguous.

*Judge, Debra (University of Western Australia, debra.judge@uwa.edu.au) & Spencer, Phoebe*

**Maternal and sibling effects on early child development: What impacts the growth of young children in rural Timor-Leste families?**

SESSION #6: LIFE HISTORY AND KINSHIP

Unlike extant foragers, tropical subsistence farmers experiencing seasonal food shortages cannot relocate. Food shortages co-occur with peak labor requirements and inclement conditions, imposing seasonal selection pressures on children's growth trajectories. In Timor-Leste, gestation of boys in the food scarce (rainy) season is reflected in poorer growth. Short interbirth intervals suggest poorer maternal condition and increased sibling competition. Herein, we examine the role of maternal height, interbirth intervals (IBI), and birth-order on children's growth. We consider effects of these factors on children's growth during the first two years, years 3-5, and ages 5 to 10 in two rural communities in Timor-Leste. Better children's Z-height over the first 10 years is associated with mother's height, longer IBI, and being firstborn (weakly). Z-weight is associated with mother's height, being firstborn, and IBI (weakly). Children's Z-height from birth to two years is not associated with maternal or sibling effects, but those factors increase in importance in 2-5, and then 5-10, year olds. Sex differences express first in the 5-10-year-olds. Preceding interbirth interval has the most significant impact from age 2 to 5 when growth is poorest, corresponding to weaning and later-born siblings. Very young children appear to be buffered from sibling competition.

*Kennair, Leif Edward Ottesen (Norwegian University of Science and Technology, NTNU; kennair@ntnu.no); Stavang, Marius; Grønnæss, Ingrid; Pedersen, Helene; Hagen, Roger; Grøntvedt, Trond Viggo; Gangestad, Steven W.; & Bendixen, Mons*

**Which contraceptive hormonal effects induce depressive symptoms, brooding or negative metacognitions in an adolescent community sample?**

SESSION #6: MENTAL HEALTH

In western countries women are much more likely to suffer from depression than men are. Also, in Norway, 75% of female students use hormonal contraception. Some reports have suggested that there is an increased risk of depression diagnoses in young women who start using hormonal contraception. Using an approach to quantifying levels (adjusted for potency) of estradiol, progestins, and androgens in specific brands and types of hormonal contraception, which we have utilized in prior published work, we address a) whether hormonal contraception use in general is depressogenic, and b) which contraceptive hormonal effects induce depressive symptoms as measured with the Beck Depression Inventory, brooding (depressive rumination), and negative metacognitions about rumination, in a community sample of 757 young women (age 16-19). We also consider effects of age and relationship status. We detected no overall effect of hormonal contraception on depressive symptoms. We furthermore detected no effects of specific hormonal levels on any of the three outcome measures. The results are discussed in light of previous findings and evolutionary frameworks for understanding hormonal effects on mood.

*King, J'Dyn (University of Texas, jdynking1@gmail.com); Hahnel-Peeters, Rebecka; & Buss, David*

**Individual Differences in the Frequency of Using Various Defenses Against Sexual Violence**

SESSION #2: VIOLENCE & AGGRESSION

Despite that over half of women experience physical sexual violence, little is known about women's hypothesized psychological defenses against rape (e.g., specialized fear of rape and use of social allies as

bodyguards). While Hahnel-Peeters and Buss (in prep) have identified various defensive tactics spontaneously nominated by women, the frequency with which women use each defense remains unknown. In the current study, we predicted that physically weaker women use bodyguards more frequently than physically stronger women. We also predicted that grip strength mediates the relationship between emotionality and the fear of sexual violence. We explore individual differences in the frequency of different tactics used against specific perpetrators. Assessing the nominated behaviors from Hahnel-Peeters and Buss, we conducted an act-frequency study using responses to individual difference measures theoretically related to protective behaviors and recorded hand-grip strength. Results may inform future research on sexual violence, including how women protect themselves against sexual violence perpetrated by strangers, acquaintances, and romantic partners.

*Kirsch, Amanda (Arizona State University, apkirsc1@asu.edu); Barlev, Michael; Sng, Oliver; & Neuberg, Steven*

**Evolved environmental aesthetic preferences regulate decisions of where to move and travel to**

SESSION #6: COGNITION

What determines which places people travel and move to? Our environmental aesthetic preferences—those places we find ugly or beautiful—might track what ancestrally would have been safe from danger and resource abundant environments. In two Prolific studies (N = 699), using diverse methods, we found a tension between natural beauty and economic opportunities in predicting where people traveled and moved to in the past ("actual") and where they wanted to travel and move to in the future ("ideal"). Whereas actual trips and ideal trips and moves were to places relatively high in natural beauty and low in economic opportunities, actual moves were to places relatively high in economic opportunities and low in natural beauty. Although people recognize that to make a living they must move to places with economic opportunities, evolved preferences lead them to vacation and fantasize about moving to nature. Thus, even though the ancestral affordances of such environments are irrelevant to surviving and thriving in the modern world, ancestrally evolved environmental aesthetic preferences still regulate decision-making in the modern world.

*Landers, Mitchell S. (The University of Chicago, mitchelllanders@gmail.com)*

**What I value or what they do? Audience valuation, not personal desire, predicts malicious envy**

SESSION #7: EMOTION

What drives envy? Many have argued that we feel envious when we compare ourselves to those above us and desire what they have. But an adaptationist analysis reveals that envy functions to guard against reputational displacement--and thus has more to do with what others desire than with what we do. In six studies, we investigate several variables thought to increase malicious envy, including personal desire and one's similarity in self-concept to the envied. Ultimately, we find that neither desire nor similarity affects malicious envy, particularly when controlling for what we propose triggers envy the most: differential audience evaluations–the extent to which the envier perceives another's traits, attributes, or behaviors as causing an audience, for whose approval the envier competes, to value the envied instead of the envier. Indeed, in scenarios that manipulate personal desire, similarity, and audience evaluations orthogonally, we find that only audience evaluations reliably increase malicious envy. These results suggest that people begrudge others for outshining them in the eyes of others, not merely for having things they want or lack. Envy has pernicious effects on personal and societal well-being; understanding its eliciting and terminating conditions is thus vitally important for both theoretical and practical reasons.

*Larsen, Mads (University of Oslo, madla@uio.no); Witoszek, Nina; & Yeung, June Chun*

**A qualitative study of happiness and meaning as evolved signals**

SESSION #7: EMOTION

The human well-being system motivates individuals to contribute to their own success and that of their community. An MLS perspective illuminates why affective rewards for selfish and altruistic behavior accumulate differently. Increased "happiness," affects that rewards solving adaptively relevant challenges, is mostly temporary. Positive psychology terms this the hedonic treadmill. "Meaning," affects that rewards helping others, offers longer lasting well-being. Meaning can also be a more powerful reward and motivator. To investigate how people experience happiness and meaning, we conducted in-depth interviews of Nordic and Slavonic helpers of Ukrainian refugees in Norway (N = 32). We conclude that happiness is not something we can reach, but functions as a compass that steers us toward successes greater than those of our comparison group. Temporary peaks reward us for a job well done, but a too strong accumulation would reduce signal sensitivity. Since meaning assesses social belonging, which is fixed in relation to a community, it needs not return to a baseline to maintain signal sensitivity. A group member's short and long-term meaning accounts are filled up as payment for altruistic contribution in the present and across time. These insights have policy implications for communities seeking to enhance well-being and social cohesion.

*Larva, Michelle (University of Turku, malarv@utu.fi); Mogilski, Justin; & Rantala, Markus*

**Consensual Non-Monogamy Understood Through Tinbergen's Four Questions**

SESSION #3: EVOLUTIONARY ANALYSIS OF MULTI-PARTNER INTIMATE RELATIONSHIPS [SYMPOSIUM]

We are well aware of the evolutionary advantages behind the leading mating strategy in humans, serial monogamy with clandestine adultery. Recently, evolutionary psychological and relationship science researchers have ventured to investigate alternative mating strategies. In this talk, we will present a first-look at a paper (pre-publication) in which we address a collection of alternative mating strategies, consensual non-monogamy (CNM), through Tinbergen's four questions. This framework is used to comprehensively understand the reasons behind any feature of an organism. Along this line, we present the phenomena of CNM through an integrative review of multidisciplinary literature, offering explanations at two different but synergistic levels of analysis: the proximate level (Ontogeny: How might interest in or preference for CNM develop over the course of an individual's lifetime? Proximate mechanisms: How does it work?) and the ultimate level (Phylogeny: How has multi-partner mating evolved over the human evolutionary history and what is its relationship to corresponding mating strategies in other species? Ultimate Function: What fitness benefits does CNM offer for the individual?). The answers to these questions are interwoven with sociocultural as well as evolutionary and biological explanations (i.e. nature and nurture) for seeking and building CNM relationships.

*Lawson, David W. (University of California, Santa Barbara; dlawson@anth.ucsb.edu); Chen, Zhian; Kilgallen, Joseph; Kumogola, Yusufu; Brand, Lotty; Mwijage, Alex; Schaffnit, S; & Urassa, M.*

**Underestimation of peer support for women's empowerment reinforces gender inequitable norms among Tanzanian men**

SESSION #5: GENDER INEQUALITY

Social scientists working to promote women's empowerment increasingly emphasize the importance of addressing stubborn social norms. Gender inequitable norms may be especially resistant to change because, even as some begin to deviate from tradition, perceptions of peer beliefs may be based on outdated information and/or false inference of private beliefs from public behavior. Here, we

investigate patterns of 'norm misperception' with respect to men's support for women's empowerment, drawing data from a Tanzanian community where tradition dictates patriarchal values, but gender roles are shifting with urbanization. We document widespread and substantial underestimation of peer support for women's empowerment, especially among men upholding more traditional values. This result is robust to alternative direct and indirect survey methods of measuring individual men's beliefs, indicating that it is not an artifact of measurement error. Older men underestimated peer support to a greater degree, consistent with the notion that misperception partly results from outdated information in the face of recent change. Relatively well-educated men were more accurate in their estimation of peer beliefs, perhaps due to greater knowledge of their community or comprehension of our survey. We discuss implications for social norm approaches to behavior change and the cultural evolution of gender ideology.

*Lesko, Lauren (UCLA, lnlesko@ucla.edu); Moore, Tyler; & Haselton, Martie*

**Updating our model of evolved mating psychology: attraction to many or few potential partners**

SESSION #12: MATE PREFERENCES

Understanding evolved mating psychology is key to understanding modern relationships, and has long been a focus of evolutionary psychology. The current model of evolved mating psychology includes two primary components: sociosexuality (interest in uncommitted relationships) and sexual desire (desire for sexual activity). An updated model, however, should include discrimination (attraction to many or few potential partners) as well. Traditionally, attraction to more individuals is bundled into sexual desire, rather than treated as a separate construct. Here, we break ground and explore discrimination as a separate construct across five independent studies (N = 2,769), we find psychometric evidence that sexual desire and discrimination are indeed two distinct factors (alpha = 0.89 and 0.83, respectively). Results also show that the discrepancy between a female participant's sexual desire score and discrimination score is significantly larger than the discrepancy between a male participant's ($p<0.001$). Additionally, we examine: within-subjects long-term fluctuations in discrimination; relationships between discrimination, sexual desire and sociosexuality; and the validity of discrimination as a concept by examining its relationship to infidelity, relationship satisfaction, and more. These results suggest that future studies examining evolved mating psychology should distinguish between sexual desire and discrimination by including measures that differentiate them.

*Li, Norman P. (Singapore Management University, normanli@smu.edu.sg); Yong, Jose C.; Tsai, Ming-Hong, Lai, Mark H. C.; Lim, Amy J. Y.; & Ackerman, Joshua M.*

**Confidence is sexy and trainable: Examining an important but neglected mate preference**

SESSION #12: MATE PREFERENCES

We investigated whether men's social confidence in an initial, opposite-sex chatting context can be improved through a video tutorial and the extent to which being perceived as socially confident results in being seen as more romantically desirable and worthy of future contact. Women chatted with men who had received or not received a tutorial on how to handle speed-dating chats (Studies 1 & 2) or with male targets selected for having high versus moderate confidence in handling initial, opposite-sex encounters (Study 3). Trained men felt more confident going into the chats and were perceived by female chat partners to be higher in social confidence, status, and dominance. However, only perceptions of social confidence were further associated with being perceived as more romantically desirable (as a short-term mate) and worthy of future contact. Findings indicate that social confidence is trainable and that other-perceived social confidence can impact the outcomes of social interactions.

More broadly, the studies support the idea that confidence in social interactions evolved as an honest indicator of competence for related tasks and relationships.

*Lieberman, Debra (University of Miami, deblieberman73@gmail.com)*

**Op-eds and communicating evolutionary science to the public**

SESSION #9: COMMUNICATING EVOLUTIONARY SCIENCE TO THE PUBLIC: HOW TO PITCH, PARAPHRASE, AND PERSONALIZE SCIENCE TO MAKE IT APPEALING TO A BROAD AUDIENCE [SYMPOSIUM]

Evolution is a hot-button topic often pushing people to extremes even before they've evaluated the claims on offer. Learning how to talk about evolutionary science—to students, colleagues, and the public—therefore requires a tempered approach. In this talk, I discuss some of the tips I learned during my time as a University of Miami Public Voices Fellow with the Op-ed Project and my experience writing various op-eds.

*Lim, Amy J. (Murdoch University, amy.lim@murdoch.edu.au); Lau, Clement; & Li, Norman P.*

**The Moderating Role of Social Network Size on Social Media Use and Self-Esteem: An Evolutionary Mismatch Perspective**

SESSION #6: EVOLUTIONARY MISMATCH

Existing meta-analyses have shown that the relationship between social media use and self-esteem is negative but at very small effect sizes, suggesting the presence of moderators that change the relationship between social media use and self-esteem. Employing principles from social comparison and evolutionary mismatch theories, we propose that the social network sizes one has on social media play a key role in the relationship between social media use and self-esteem. In our study (N = 123), we showed that social media use was negatively related to self-esteem, but only when their social network size was within an evolutionarily familiar level. Social media use was not related to self-esteem when people's social networks were at evolutionarily novel sizes. The data supported social comparison and evolutionary mismatch theories and elucidated the small effect size found for the relationship between social media use and self-esteem in current literature. More critically, the findings of this study highlight the need to consider evolutionarily novel stimuli that are present on social media to better understand the behaviors of people in this novel social environment.

*Lopez, Lukas (University of Utah, lukas.lopez@fcs.utah.edu); Dahl, Audun; & Walle, Eric*

**Emotions arise from moral violations based on appraisals of personal significance and the ability to stop a bad transgressor**

SESSION #11: MORALITY

Predominate views of moral emotions have shifted from the traditional account of a 1-to-1 correspondence between moral violations and emotions (Rozin et al., 1999) to constructionist theories that contend that no associations exist between emotions and violations (Cameron et al., 2015) and the sociofunctional account which states that moral emotions arise based on the fitness costs of confronting a transgressor (Molho et al., 2017). In three pre-registered studies, we assessed participants' appraisal dimensions (Lazarus, 2006; Piazza et al., 2019) and found support for the sociofunctional account of moral emotions. Specifically, we found that participant anger corresponded with higher ratings of personal significance, viewing the transgressor as a bad person, and having the ability to personally stop the transgressor compared to endorsements of disgust, which corresponded with higher ratings of unexpectedness. These associations were consistent across moral violations from Rozin et al. (1999) and Graham et al. (2009), the two most common sets of moral violations, providing further support for the sociofunctional account of moral emotions. The effects of framing moral violations to increase

participants' ability to stop transgressors, as well as how emotions such as sadness and fear relate to participants' appraisals and endorsements of aggression will be discussed.

*Loria, Riley N. (University of Colorado Boulder, riley.loria@colorado.edu); Pedersen, Eric J.; Flores, Alex; Slovic, Paul; & Van Boven, Leaf*

**Using Image-Based Interventions to Impact Attitudes Toward Nuclear Weapons**

SESSION #11: MORALITY

Humans are ill-equipped to understand and make logical judgments about the evolutionarily novel phenomena of mass atrocities, like nuclear strikes. Broadly, people are insensitive to changes in scope when considering large numbers. Visual aids mimicking more natural number processing may help reduce scope insensitivity, enabling people to perceive large numbers more accurately. The current study examines the effect of an image-based intervention illustrating nuclear weapons' impact on retaliation decisions. Participants (N = 434) read a scenario wherein nuclear retaliation against an Iranian city—a mass casualty event—is proposed to end a conflict. One group saw an image of a blast radius over a map of nearby city, another saw a blast radius over the Iranian city, and a control group saw an unaltered map of the Iranian city. Participants reported their support of the nuclear strike. We predicted those in the nearby city condition would show the least support, followed by the Iranian city condition. While support did not vary by condition, exploratory analyses revealed that Republican participants, who show the most support for retaliation in previous our work, were significantly less supportive of the strike in the nearby city than in other conditions.

*Luberti, Francesca R. (Nipissing University, francesl@nipissingu.ca); Reside, Tracy-Lynn; & Carré, Justin M.*

**Testosterone's Role in Modulating Human Behaviors Relevant to Mating and Parenting**

SESSION #7: ENDOCRINOLOGY I

Testosterone (T) is linked to mating and parenting in humans and nonhuman animals. Many studies have investigated which human mating and parenting behaviors are correlated with, or influenced by, T, but a thorough summary of the research done with both women and men on these topics is lacking. Here, we comprehensively reviewed evidence on whether 1) basal T levels are related to mating and parenting, 2) T responds to reproduction-relevant cues, 3) acute changes in T are related to mating and parenting, and 4) exogenous T causally affects mating and parenting, in men and women. We found that basal T levels are straightforwardly associated with behaviors like relationship and parental status, whereby higher T levels correspond to being single and non-parents, but less clearly associated with others, like sociosexuality. T responds to reproduction-relevant cues, like interacting with a potential mate, although the magnitude and direction of T changes are highly context-dependent. Preliminary findings suggest that these changes in T can modulate subsequent mating and parenting behaviors, such as mating effort. Experimentally manipulated increases in T levels can causally affect similar behaviors, like sexual impulsivity. We summarize main take-away points and discuss possible future directions for research in this field.

*MacDonald, Geoff (University of Toronto, geoff.macdonald@utoronto.ca); Park, Yoobin; Impett, Emily; Chung, Joanne M.; & Neel, Rebecca*

**What Social Lives Do Single People Want? A Person-Centered Approach to Identifying Profiles of Social Motives Among Singles**

SESSION #5: PERSONALITY

Despite the worldwide increase in unpartnered individuals (i.e., singles), little research exists providing a comprehensive understanding of the heterogeneity within this population. In the present research (N =

3,195), we drew on the fundamental social motives framework to provide a theory-based description and understanding of different "types" of single individuals. Across two Western samples (primarily European and American) and one Korean sample, we identified three groups of singles with relatively consistent motivational patterns: a) singles with strong independence motives and little interest in affiliation, mating, or status (i.e., independent profile); b) singles with greater interest in self-protection as well as social connections and status (i.e., socially focused profile); and c) singles with little interest in self-protection but moderate interest in affiliation (i.e., low safety focus profile). Notably, these profile features did not perfectly replicate in one smaller Western sample collected before the pandemic (particularly the third profile), highlighting the need to interpret the data with changes in disease salience in mind. Across samples, the independence-oriented group of singles consistently reported greater satisfaction with singlehood compared to other groups. The three groups of singles also showed substantial differences in other affective and behavioral variables (e.g., how they spend their social time).

*Mengelkoch, Summer (UCLA, smengelkoch@ucla.mednet.edu) & Hill, Sarah E.*

**Distressed About the Stress Response: Hormonal Contraceptive Use and Women's Inflammatory Response to Psychosocial Stress**

SESSION #10: ENDOCRINOLOGY II

Women have been historically excluded from stress research; however, some past work finds women using hormonal contraceptives (HCs) exhibit a blunted cortisol response to stress, which may accompany an exaggerated inflammatory response to stress, although this has yet to be investigated in vivo. In the current research, participants included naturally cycling (NC) women (n = 67) and women using oral HCs (n = 60), who were all exposed to the stress condition of the Trier Social Stress Task. Before and after stress, researchers assessed women's (a) cortisol, (b) pro-inflammatory cytokine (IL-1β, IL-6, and TNF-α), (c) subjective stress, and (d) mood levels. Results revealed differences between NC women and women using HCs: in NC women, cortisol and IL-6 rose together following stress, and these biological responses to stress were accompanied by more positive moods; in women using HCs, cortisol and TNF-α rose together following stress, and these biological responses were accompanied by increases in subjective stress levels. These results suggest that the biological responses to stress in women using HCs, compared to NC women, might negatively impact their abilities to psychologically manage the stress they experience. Implications for women's health, depression risk, and social relationships will be discussed.

*Merrie, Laureon A. (Oklahoma State University, laureon.merrie@okstate.edu) & Krems, Jaimie Arona*

**Components of Women's Mating Threat: Intent and Capacity to Compete**

SESSION #4: INTRASEXUAL COMPETITION

Research on female intrasexual mating competition suggests that women compete on the dimensions preferred by males—typically physical attractiveness and sexual accessibility. Here, we use a basic task analysis to identify the components that lead women to deem other women mating rivals, focusing on two classes of cues: another woman's competitive capacity (ability to attract a mate) and competitive intent to attract a mate. Data from two experiments (N = 701) support predictions that a) physical attractiveness (capacity) drives perceptions of women's competitive capacity, while b) behaviors such as flirting drive perceptions of women's desire to initiate a relationship (intent), and c) both components independently drive perceptions of another woman's mating threat. An ongoing third experiment tests whether d) women's appearance enhancement drives perceptions of both intent and capacity to compete. Notably, women participants do not report highest intentions to aggress against the women

they deem the greatest mating threats, and some components causing women to be deemed significant mating threats also cause women participants' intent to affiliate with those women. Although women high on both competitive capacity and intent are perceived as the most threatening mating rivals, they are not the most likely to suffer intrasexual social consequences.

*Miller, Geoffrey (University of New Mexico, gfmiller@unm.edu)*

**What evolutionary psychology can learn from polyamory**

SESSION #3: EVOLUTIONARY ANALYSIS OF MULTI-PARTNER INTIMATE RELATIONSHIPS [SYMPOSIUM]
Humans evolved to form pair-bonds protected by mate-guarding, jealousy, and marriage customs. Yet today, millions of people enjoy happy, stable, consensually non-monogamous (CNM) relationships (e.g. open, polyamorous, or swinging), in which pair bonds are not sexually exclusive. Is CNM adopted just by unusual people with strange mating preferences? In our survey (Morris, Russell, & Miller, 2020, N=681), anti-CNM attitudes were predicted mostly by political conservatism and Christian religiosity, not by sociosexuality (SOI-R), sexual disgust (TDDS), homophobia (SPS), or Big Five personality traits. Thus, the biggest barriers to CNM adoption might be cultural (monogamist ideologies), rather than emotional (e.g. managing sexual jealousy, protecting primary pair bonds, balancing mating effort across partners). As religiosity and conservatism fade among younger adults, CNM is increasing rapidly. In this talk I'll explore how CNM could inspire some post-monogamist updates to our evolutionary models of human sexuality. For example, we may have (1) ignored sexual validation, sex-for-social-bonding, and recreational intimacy as proximate motivations for relationships, (2) under-estimated our capacities to reduce, gamify, and/or eroticize sexual jealousy, and (3) over-emphasized a 'sociosexuality dimension' (short-term uncommitted vs. long-term committed sex) that can't accurately represent the multiple, open, long-term relationships found in CNM.

*Mogilski, Justin (University of South Carolina Salkehatchie, justin.mogilski@gmail.com) & Ciaffoni, Stefano*

**Multi-partner relationship maintenance practices predict rates of conflict and friendship among in- and extra-pair intimate partners**

SESSION #3: EVOLUTIONARY ANALYSIS OF MULTI-PARTNER INTIMATE RELATIONSHIPS [SYMPOSIUM]
People with multiple, concurrent intimate relationships may experience conflict with in- and extra-pair partners if they do not precaution against the adaptive challenges of multi-partnering. Those who engage in consensual non-monogamy (CNM) reportedly anticipate and resolve these challenges. In an international sample of single- and multi-partnered people (N = 1,342), we identified nine CNM relationship maintenance practices and examined how self-reported adherence to these practices was related to amiability and conflict among partners. People who more often disclosed their extra-pair attractions, communicated about jealousy, felt compersion, and shared extra-pair sexual experiences with an in-pair partner reported less conflict with their in-pair partner but not their in-pair partner's partner(s). Those who engaged in more sexual health maintenance reported less conflict with an in-pair partner's partner(s). Participants were also more likely to report friendly affect and behavior toward a partner's partner(s) when they disclosed extra-pair attraction, communicated about jealousy, felt compersion, shared extra-pair sexual experiences, and considered how resources were shared among partners. From these data we infer that CNM relationship maintenance practices help to resolve the interpersonal and adaptive challenges (e.g., partner rivalry, pathogen spread and unintended pregnancy, resource-sharing inequities) of having more than one intimate partner.

*Moncrieff, Michael (University of Geneva, michael.moncrieff@unige.ch) & Lienard, Pierre*

**Envy in Radicalization: A Functional Model**

SESSION #2: VIOLENCE & AGGRESSION

Emotions are known to play a central role in radicalization, violent extremism, and conspiracy ideation. However, the contribution of envy to those social pathologies has been relatively left unexplored. We propose that the emotion explains conspicuous features of the radicalization process: the motivation to monitor social differentials, the imputation to a source of postulated welfare costs, the impulse to eliminate the competition, the attempt to diffuse responsibility for one's aggressive actions, and the derivation of pleasure at the misfortune of the envied. In two pre-registered studies with 1,300 participants, we investigated the relationship of envy with radicalization, violent extremism, and conspiracy ideation. Envy appears to determine core aspects of radicalization, particularly the endorsement of extremism and the acceptance of violent means to achieve one's ends, while radicalization facilitates the adoption of conspiracy ideation rather than the latter being a cause of radicalization. Implications for future research on the role of envy in radicalization and violent extremism is discussed.

*Oliveira, Angelica (University of Guelph, nascimea@uoguelph.ca) & Barclay, Pat*

**The role of reputation in information and misinformation sharing**

SESSION #4: SOCIAL INFORMATION

A good epistemic reputation can lead to better social connections and status, both of which are crucial for survival and reproductive success. The sharing of misinformation may harm one's reputation by undermining one's trustworthiness, which can negatively impact one's social status and ability to affiliate with others. Thus, most people are disinclined to share false information. We investigated whether reputational concerns would impact people's willingness to share potential news stories: we prompted reflection by instituting warning messages that promote reasoning and a concern for the sharer's reputation. We randomly assigned participants to one of five warning conditions, one of which was the control group, and we asked for their willingness to share 24 headlines, half being false news. Whenever they indicated they would share, a warning message appeared to confirm their decision. Results: Participants in the warning conditions shared fewer stories than participants in the control condition. Moreover, when prompted to reflect on their reputation and the possibility of fake news, participants shared less false information than those only prompted to reflect on their reputation. By comprehending the impact of reputation on the spread of information, we can formulate effective strategies to curb misinformation sharing.

*Olszanowski, Michal (University of SocialSciences &Humanities SWPS, molszanowski@swps.edu.pl); Frankowska, Natalia; & Tolopilo, Aleksandra*

**"Rear bias" in spatial auditory perception: Attentional and affective vigilance to emotional vocalizations, but not tones, occurring outside the visual field**

SESSION #2: PERSONALITY & PERCEPTION

Presented studies explored the rear bias phenomenon, i.e., the attentional and affective bias to sounds occurring behind the listener. Physiological and psychological reactions (i.e., fEMG, EDA/SCR, Simple Detection Times, and self-assessments of affect-related states) were measured in response to tones of different frequencies (Study 1) and emotional vocalizations (Study 2) presented in rear and front spatial locations. Results showed that emotional vocalizations, when located in the back, facilitate reactions related to attention orientation (i.e., auricularis muscle response and detection time) and evoke higher arousal – both physiological (as measured by SCR) and psychological (self-assessment scale). Importantly, observed asymmetries were larger for negative and threat-related signals (e.g., anger) than positive/non-threatening ones (e.g., achievement). In turn, there were no effects of sound localization for tones. Observed relationships are discussed in terms of one of the postulated auditory system's

functions, which is monitoring of the environment in order to quickly detect potential threats that occur outside of the visual field (e.g., behind one's back).

*Pick, Cari M. (Environmental Defense Fund, cari.m.pick@gmail.com) & Neuberg, Steven L.*

**Beyond Passive Observation: When Do We "Affordance Test" to Actively Seek Information about Others?**

SESSION #4: SOCIAL INFORMATION

From an affordance management perspective, the goal of social perception is to assess and manage potential opportunities and threats afforded by others. Social perceivers are highly interdependent and thus often motivated to assess particular affordance-relevant characteristics in a target. Sometimes, assessing these characteristics via passive observation can be difficult. In these cases, perceivers may "affordance test": actively manipulate the target's circumstances to reveal (or notably not reveal) cues to a characteristic. We propose a framework predicting circumstances under which affordance testing is more likely, characteristics more likely to be tested for, and people more likely to test and be tested. Research synthesized from literatures on employment, education assessment, initiations/hazing and coming-of-age rituals, and close relationships provide preliminary support for this framework. Three studies (N=2432) provide support for three core hypotheses: that 1) characteristics believed to be less observable are more likely to be affordance tested; 2) characteristics believed to be more important are more likely to be affordance tested; and 3) perceivers who feel more time pressure are more likely to affordance test. We thus provide promising initial progress in understanding foundational factors affecting when perceivers affordance test—an important, yet previously understudied, component of the social information-seeking process.

*Pietraszewski, David (Max Planck Institute for Human Development, pietraszewski@mpib-berlin.mpg.de)*

**The evolutionary psychology of cognitive science: The problem of free will as a test-case**

SESSION #6: COGNITION

Adaptationism sheds light on nearly every human activity—thinking about the mind being no exception. Nevertheless, psychologists and philosophers have yet to fully acknowledge the influence of their own evolved psychologies when reasoning about the mind. In this talk, I will demonstrate how even cursory adaptationist analyses of scientists' thinking can resolve some of the longest-standing problems within cognitive science. I will use as a test case the "problem of free will", which has attracted immense time, money, and energy. I will show that this problem is not substantive, but is rather a byproduct of our evolved psychology, occurring when scientists experience conceptual slippage between (i) evolved conceptual frameworks for reasoning about conspecifics, and (ii) evolved conceptual frameworks for reasoning about artifacts and the physical world. This adaptationist analysis re-casts the problem of free will as a naturalizable phenomena, rather than allowing it to continue on as an ethereal philosophical mystery taking up valuable scientific time and effort. The broader point being that adaptationism can revolutionize the cognitive sciences yet again: this time, by revealing to scientists the evolved psychologies that they themselves are bringing to bear on the subject(s) of their study.

*Pinsof, David (UCLA, david.pinsof@gmail.com)*

**The Evolution of Social Paradoxes**

SESSION #8: PARADOXES, IDEOLOGY, & PERCEPTION

Human behavior is often paradoxical. We show humility to prove we're better than other people, we bravely challenge social norms so that people will praise us, and we donate to charity anonymously to get credit for not caring about getting credit. Here, I argue that these and other social paradoxes have a

common thread: they are all attempts to signal a trait while concealing the fact that one is signaling the trait. Such self-negating signals emerge from the interaction of two cognitive abilities: 1) cue-based inference, and 2) recursive mentalizing. If agents can model each other's mental states, including their intentions to signal positive traits, then intentional signals of positive traits can, themselves, become cues of negative traits. The result is that status-seeking and virtue-signaling are forced to occur covertly, without becoming common knowledge among signalers or recipients. Social paradoxes also play a crucial role in enabling intergroup dominance by inhibiting common knowledge of the group's motives, which would otherwise disrupt coordination by eliciting moral disapproval. The analysis of social paradoxes can explain a variety of puzzling aspects of human social life, including the cultural evolution of status symbols, the function of sacred values, and the nature of political belief systems.

*Pirlott, Angela (Saint Xavier University, pirlott@sxu.edu) & Foley, Matthew*

**Cross-Cultural Evidence for the Role of Parenting Costs Limiting Women's Sexual Unrestrictedness**

SESSION #9: MATING IV

Humans are not unique among primates (and mammals more broadly) in that males tend to favor sexual unrestrictedness more than women, nor are humans unique in that females bear a greater burden of parenting than males. Across species, biological parenting costs are theorized to limit sexual unrestrictedness, and the sex differences in these costs are theorized to explain sex differences in sexual restrictedness (Trivers, 1972). Among humans, if sociocultural factors (i.e., economic access) can lessen these parenting costs to women, then cultural-level variances in women's biological parenting costs should correspond with cultural-level variances in women's sexual unrestrictedness. Across N = 48 cultures, as women's parenting costs decreased via reduced physiological costs (indicated by contraceptive use and availability, fertility rates, breastfeeding prevalence, and maternal mortality rates) and increased economic access (to offset parenting costs, indicated by income and workforce participation), women's sexual unrestrictedness increased (rs = -.45 and .47, respectively). This research contributes to the cross-species literature suggesting that the costs associated with parenting selectively restrict sexual promiscuity and that sex differences in sexual restrictedness emerged as sex-specific adaptations to these costs.

*Pisanski, Katarzyna (CNRS - French National Centre for Scientific Research, kasiapisanski@gmail.com); Reby, David; & Oleszkiewicz, Anna*

**Roaring softly: Auditory deprivation impairs human nonverbal vocal communication of aggression and pain**

SESSION #7: EMOTION

The human vocal repertoire contains nonverbal vocalizations like roars, cries, screams, and laughs that facilitate social communication. Although the universality of these putatively primordial vocal sounds and their phylogenetic roots in animal calls suggest they may have a strong reflexive foundation, humans can produce and modulate them voluntarily. This advanced ability presumably requires auditory feedback, a prediction we test here on a large sample of profoundly deaf men and women. We show that deaf adults produce highly atypical volitional vocalizations of aggression and pain, yet fairly typical fear vocalisations. Compared to normally hearing controls whose vocalizations follow predictable form-function mappings, deaf adults produce vocalizations that are, regardless of context, higher pitched with wider formant spacing and almost no nonlinear phenomena, resulting in unusually tonal, high frequency, and structurally homogeneous vocalizations. In four lab experiments with over 400 listeners, we show that these vocalizations of deaf adults also reveal their hearing impairment, sound less authentic than do those of controls, and critically, are less often correctly classified by their intended

emotion. These effects were strongest for congenitally deaf adults with absolutely no hearing experience. Auditory experience thus shapes volitional nonverbal vocalizations in humans which, similar to speech, may be partly learned.

*Pisor, Anne (Washington State University, anne.pisor@wsu.edu) & Ross, Cody*

**Ingroup and outgroup, near and far: The case for studying both intergroup and long-distance relationships**

SESSION #1: COOPERATION I

Though we often focus on intergroup dynamics in evolutionary social science, humans have long managed risk through a combination of in-group and out-group relationships and local and non-local connections. Reviewing the literature and a case example from rural Bolivia, we argue that intergroup relationships and long-distance relationships should be studied as partially overlapping aspects of human sociality. First, we review the functions both relationship types serve; second, we draw on ethnography and field experiments to illustrate how the two relationship types may be more or less important in different contexts – and how different methods may be better suited to measure each one. We close by identifying outstanding questions about long-distance relationships and how we're addressing them in our ongoing work.

*Price, Michael (Brunel University, michael.price@brunel.ac.uk); Johnson, Dominic; Moon, Jordan; & Johnson, Kathryn*

**Religiosity as an adaptive motivational system: A 54-country study**

SESSION #5: THE EVOLUTION OF SCIENCE AND RELIGION AS MEANING-MAKING SYSTEMS (PART 2) [SYMPOSIUM]

The "biocultural adaptive motivational system" theory of religiosity (BAMS) proposes that religious/spiritual belief systems evolved to motivate individual striving towards adaptive goals. They motivate striving by promoting "belief in a higher plan" (BHP), that is, belief that one's own life is following a plan of a higher power that will ensure one's own long-term well-being. BHP, in turn, promotes two "motivating outlooks" – optimism and sense of purpose – which are key aspects of goal striving and of mental and physical health. In a cross-cultural survey (N = 55,255), translated into 39 languages and administered in 54 countries, we tested the BAMS hypothesis that positive associations between BHP and optimism/purpose would be observed across countries and religions. We also tested two leading alternative hypotheses: that optimism/purpose would instead be positively related to (1) a different aspect of religiosity, religious social support, and (2) a different kind of belief system, belief in science. Results provided some support for all three hypotheses, but support for BAMS was especially strong. BAMS may represent a plausible novel evolutionary theory of religiosity which helps explain why, across diverse human cultures, religiosity both entails BHP and tends to associate positively with mental and physical health.

*Rafiee, Yasaman (University of Göttingen, yasaman.rfe@psych.uni-goettingen.de); Stern, Julia; Ostner, Julia; Penke, Lars; & Schacht, Anne*

**Does emotion recognition vary across menstrual cycle phases?**

SESSION #7: EMOTION

Emotion recognition plays a crucial role in shaping and maintaining social interaction. The underlying mechanisms of this ability are not completely understood yet, but prior research indicates the relationship between the endocrine system and emotion recognition. In this line, some studies, using the menstrual cycle as a natural hormonal model, attempted to investigate if emotion recognition change as a function of the menstrual cycle and circulating ovarian hormones. Previous studies,

however, have demonstrated inconsistent findings that might be due to heterogeneous methodologies and lacking ecological validity. In the current study, we aimed at investigating the associations between within-subject differences in ovarian hormones levels and emotion recognition from auditory, visual, and audiovisual modalities in N = 131 naturally cycling women across the late follicular and mid-luteal phases of the ovulatory cycle. We assessed salivary progesterone and estradiol in each phase. Our findings did not reveal significant differences in emotion recognition ability across two cycle phases. Moreover, no association was observed between levels of ovarian hormones and emotion recognition. Our findings thus highlight the necessity of employing large-scale replication studies with well-established designs along with proper statistical analyses to shed light on the mixed findings in the field.

*Reilly, Sean (University of Colorado Boulder, sean.reilly@colorado.edu); Grant, Marissa; Loria, Riley; Van Boven, Leaf; & Pedersen, Eric*

**The Reputational Consequences of Gratitude Expressions and Returned Benefits**

SESSION #1: COOPERATION I

Gratitude expressions are theorized to communicate one's value for another and signal an intent to return benefits in the future. Here, we investigated benefactors' perception of, and behavior toward, a beneficiary following gratitude expressions and returned benefits to investigate the reputational consequences of both. In Study 1, 320 undergraduates recommended a coffee shop to another student (a confederate) and either received an expression of gratitude or not. In Study 2, (N = 342) the student's response either contained gratitude, a $5 gift card, both, or neither. Across both studies, participants who received a gratitude expression, compared to those who did not, perceived students more favorably and reported greater intentions to affiliate with them. This effect was mediated by participants' ratings of the perceived gratitude of the student. In Study 2, we found that though a returned benefit by itself increased positive perceptions and intentions to affiliate compared to the no gratitude, no benefit condition, gratitude by itself was more effective, and pairing gratitude with a return benefit did not provide a further boost. These results provide initial evidence that gratitude expressions alone can signal a beneficiary's interpersonal valuation toward a benefactor and reinforce relationships without immediately returned benefits.

*Reynolds, Tania (The University of New Mexico, tareyn@unm.edu) & Severson, Alex*

**Social updating: Ideologues differ in the tendency to treat interpersonal information as diagnostic**

SESSION #8: PARADOXES, IDEOLOGY, & PERCEPTION

Are others' pasts diagnostic of their probable futures? Interpersonal risk assessments carry tradeoffs. Consider a person contemplating whether to mate with someone who previously committed infidelity. If they assume this prior dalliance has no predictive value, they risk abandonment or cuckoldry. If they assume prior infidelity predicts future infidelity, they could forego a potentially advantageous mateship. Because both assumptions entail risk, natural selection may have preserved variation in the tendency to update in response to social information. We contend that the tendency to update socially (i.e., treat interpersonal information as diagnostic) differs by political affiliation and ideology. We hypothesized that ideological differences vary across time-frames, such that the widest political divergences would occur when individuals rely on negative (vs positive) information to predict future (vs past) outcomes. Across two survey experiments (N = 1,676 US residents), Republicans and conservatives more readily updated than did Democrats and liberals, but particularly when predicting future negative outcomes. Findings suggest ideologues differ in their error management systems, such that they differentially weigh others' pasts to predict future social costs. Such differences may contribute to polarization on

policies such as criminal rehabilitation or welfare, where assumptions about the predictive value of others' pasts are pertinent.

*Richardson, George (University of Cincinnati, george.richardson@uc.edu)*

**Mounting evidence against adaptive theories of within-population variation in age at menarche**

SESSION #6: LIFE HISTORY AND KINSHIP

Several applications of life history theory to human development (e.g., Draper & Harpending, 1982; Belsky et al., 1992; Ellis, 2004) proposed that pubertal timing in females is adaptively calibrated to early environmental conditions including father absence. However, Rowe (1992) and Barbaro et al. (2017) suggested covariation between age at menarche and early environment may be due to genetic confounding rather than conditional adaptation. After reviewing some key methodological issues in research examining environmental effects on menarche timing, I review evidence that the apparent correlation between father absence and age at menarche is largely or wholly due to selective reporting, that age at menarche is highly heritable and non-genetic factors shared by siblings do not account for significant variance in this phenotype as expected under theories of conditional adaptation, and that early environmental effects on reproductive milestones and their sequalae generally do not survive control of familial confounds. I also highlight evolutionary genetic evidence that variation in age at menarche is not maintained by balancing selection. Taken together, these findings suggest within-population differences in pubertal timing among females is unlikely adaptive and implicate genetic factors and nonsystematic influences as their primary sources.

*Rinks, Drake (San Diego State University, drakerinks1993@gmail.com) & Roulette, Casey*

**Exploring Female Substance Use in the Ethnographic Record: Roles of Gender Inequality, Fertility, and Food Security**

SESSION #5: GENDER INEQUALITY

Abundant cross-national data indicate a male bias for virtually all recreational drugs. However, these data derive primarily from industrialized, developed countries or urban centers of developing nations. There is considerably less known about drug use patterns among smaller-scale, subsistence-level populations, who collectively represent a more significant portion of human biocultural diversity. To better understand factors that explain female substance use, we performed a systematic, cross-cultural study of drug use using the electronic Human Relations Area Files. Descriptions of drug use were recorded and scored on 96 uniquely created demographic and cultural variables for each of the 186 Standard Cross-Cultural Sample populations. Using multivariate analyses, we examined the relationships between female drug use and population-level data such as gender inequality, fertility, acculturation, and food stress. Results support the cross-national trend of a male bias with substantial cross-cultural variation in female use. After controlling for male use, female use is positively associated with food stress and social integration and negatively associated with male dominance, subsistence loss, and female empowerment. We are currently collecting and analyzing fertility data. This cross-cultural ethnographic data offers new insights into how environmental, ecological, and cultural factors shape female drug use.

*Roney, James (University of California at Santa Barbara, roney@psych.ucsb.edu)*

**The Implantation Window and its Implications for Functional Cycle Phase Shifts in Women's Sexual Psychology and Behavior**

SESSION #10: ENDOCRINOLOGY II

Research on menstrual cycle shifts in women's mating psychology and behavior has largely focused on the 'fertile window' (i.e., cycle days when conception is possible). Motivational priorities theory (MPT)

proposes that sexual motivation tends to be elevated during the fertile window when conception would have been an ancestral fitness benefit that weighed against the fitness costs of sex, such as risk of injury or infection. An important addition to MPT, however, relates to evidence that the fitness costs of sex were not equal across cycle days. The 'implantation window' denotes the mid-luteal phase days when embryo attachment occurs. Immunosuppression to facilitate implantation may increase infection risk during this window, which may have increased the fitness costs of sex at this time. Here, I present data from three large, daily diary studies (N > 2500 observations) with precise estimations of ovulatory timing that show sharp declines in measures of women's sexual desire and behavior specifically within the implantation window. These patterns support sexual motivation being calibrated to varying fitness costs and benefits of sex in ways that are more nuanced than a simple fecund vs. non-fecund distinction, and they recommend further investigation of possible adaptations associated with the human implantation window.

*Samore, Theodore (University of California, Los Angeles; theo.samore@gmail.com); Fessler, Daniel M.T.; Sparks, Adam Maxwell; & Holbrook, Colin*

**Traditionalism, Religiosity, and COVID-19 precautionary behaviors across 27 societies**

SESSION #1: THE EVOLUTION OF SCIENCE AND RELIGION AS MEANING-MAKING SYSTEMS (PART 1) [SYMPOSIUM]

People vary in their embrace of tradition, and their perception of the salience of hazards. Over evolutionary time, traditions have offered avenues for addressing hazards, plausibly linking orientations toward tradition with those toward danger. Research documents connections between traditionalism and threat responsivity, including pathogen threats. Additionally, because hazard-mitigating behaviors can conflict with competing priorities, associations between traditionalism and pathogen avoidance may hinge on contextually contingent tradeoffs. Further, some pathogen avoidance behaviors may be rooted in deep traditional practice, such as collective worship or prayer. Conversely, other ameliorative behaviors may be relatively novel, such as those recommended in public health. The COVID-19 pandemic provides a real-world test of the relationship between traditionalism and different modes of hazard avoidance. Across 27 societies (N = 7,844), we find that individuals' endorsement of tradition tends to positively correlates with their adherence to costly COVID-avoidance behaviors in both the public health and religious domains. Accounting for some of the conflicts that arise between public health precautions and other objectives further strengthens this relationship. Finally, despite tradeoffs between public health and religious precautions, both tend to correlate together, indicating that some individuals jointly pursue pathogen-mitigating behaviors even across conflicting domains.

*Schläpfer, Alain (Stanford University, alainsch@stanford.edu)*

**The Social Benefits of "Anti-Social" Punishment**

SESSION #2: COOPERATION II

Punishment of defectors is believed to be a key factor in sustaining large scale human cooperation. However, several studies have shown that humans also frequently punish those that contribute to a public good, a phenomenon termed `anti-social' punishment. While subsequent work has suggested several reasons why anti-social punishment may be individually optimal, it is universally considered to be detrimental to cooperation and thus anti-social. This study contradicts this view, showing that punishment of cooperators can be an important factor in sustaining cooperation rates. I construct an evolutionary model where individuals play a public goods game in randomly changing groups. I consider three types of individuals: always-defectors, always-cooperators, and conditional cooperators who only contribute if the share of defectors in the group is below a threshold. I then show that allowing for anti-social punishment increases overall cooperation rates. Conditional cooperators are key in establishing

widespread cooperation, but they can be invaded by always-cooperators, who in turn benefit always-defectors. This can be prevented if conditional cooperators punish those who contribute in a group with many defectors, i.e. if they engage in anti-social punishment. I further show that the model predictions correspond to patterns of punishment found in the experimental literature.

*Schniter, Eric (Chapman University, eschniter@gmail.com); Kaplan, Hillard; & Gurven, Michael*

**Cultural transmission vectors of essential knowledge and skills among Tsimane forager-farmers**

SESSION #8: DISPATCHES FROM SOUTH AMERICA: INSIGHTS FROM STUDIES IN ECOLOGICALLY DIVERSE COMMUNITIES [SYMPOSIUM]

Humans benefit by transmitting cultural information to others in a variety of ways. Not all potential transmitters are expected to be equally preferred by learners or equally willing to influence their culture acquisition. Across socioeconomic opportunities and ages, costs and benefits to both learners and potential transmitters are expected to vary, affecting rates of culture transmission from different vectors. We examined reported patterns of culture transmission contributing to 92 essential skills among a sample of 421 Tsimane forager-farmers native to Bolivia. Consistent with the expectation that the costly provision of support and cultural information typically flows from older to younger generations in a subsistence society, we find that the development of essential knowledge and skills is primarily influenced by older same-sex relatives, especially parents. Grandparents are more often reported as transmitters for low-strength/high-difficulty skills that they have comparative advantage in, such as storytelling and musical performance. Though less frequent, same generation peers are more likely to provide discouragement in the learning process and to transmit modern, market-oriented skills. This multigenerational family-based pedagogy helps facilitate successful economic and social production in a complex skills niche dependent on multigenerational cooperation, such as observed in human hunter-gatherers and other subsistence populations.

*Segal, Nancy (CSU Fullerton, nsegal@fullerton.edu); Pratt-Thompson, Elizabeth; & Ettinger, Ulrich*

**Personality and Social Attraction Are in the Brain, Not in the Face**

SESSION #4: GENETICS/EPIGENETICS

Relationships among physical resemblance, personality similarity and social affiliation generate discussion among behavioral science researchers. A novel “twin-like” design--genetically unrelated look-alikes (U-LAs)—explored associations among resemblance in appearance, personality traits and social attraction, within an evolutionary framework. The Personality for Professionals Inventory and Rosenberg Self-Esteem Scale were completed by 44 and 49 U-LA complete pairs, respectively. Mean age was M=41.19 years, (SD=17.05), with a range of 16-84 years. The present study, using an increased sample size in this ongoing project, both supported and extended earlier findings: U-LA intraclass, age-sex corrected correlations were negligible for all five personality factors (ris=-.18-.21) and self-esteem (ri=-.14), indicating no meaningful relationship between appearance and behavior. The criticism that monozygotic (MZ) twins are alike because their matched looks invite similar treatment is refuted in favor of a genetic (and evocative) component underlying twins’ personality similarity. The second meaningful finding was that fewer U-LAs expressed initial and current close social relationships at the highest level (15.1%, 15.1%), vs. reared-apart monozygotic twins (79%, 80%), respectively, consistent with earlier findings. These differences replicated for initial/current familiarity feelings. Findings support both similarity-attraction and evolutionary theories of relatedness.

*Shaver, John (University of Otago, john.shaver@otago.ac.nz); Spake, Laure; Sear, Rebecca; Shenk, Mary; & Sosis, Richard*

**Religion, maternal support, and child health and development across five diverse cultures**

SESSION #12: THE EVOLUTIONARY DYNAMICS OF RELIGION, FERTILITY, AND FAMILY [SYMPOSIUM]

From an evolutionary perspective, the higher relative fertility of religious individuals in contemporary environments represents a puzzle: studies find a negative relationship between child number and developmental outcomes for each child; however, there is currently little evidence that children born to religious parents fare worse, despite larger family sizes. Using anthropometric, demographic, and social network data collected from over 5,000 mothers and their children across Bangladesh, the Gambia, India, Malawi and the United States, this talk describes the results of a study designed to evaluate the hypothesis that religious systems motivate cooperative parenting behaviors among extended kin networks and unrelated co-religionists to enable large families of successful children.

*Shenk, Mary (Pennsylvania State University, mks74@psu.edu); Ghosh, Saswata; Schaffnit, Susan; Lynch, Robert; Spake, Laure; Alam, Nurul; Sear, Rebecca; Sosis, Richard; & Shaver, John*

**How Does Religiosity Affect Fertility?**

SESSION #12: THE EVOLUTIONARY DYNAMICS OF RELIGION, FERTILITY, AND FAMILY [SYMPOSIUM]

The relationship between religion and fertility is well-studied, with the general finding that religious affiliation or practice is associated with higher fertility. Yet the relationship between religiosity and fertility is understudied, and there is debate regarding what it is about religion that drives this pattern (a crucial topic for uncovering the mechanism/s underlying the relationship between religion and fertility). Moreover, religiosity is generally only studied using one or two simple measures—attendance at religious services or strength of belief—with little attention to the multiple dimensions of religiosity known to exist. This paper uses newly-collected data on 1,023 women from Birbhum, India and 902 women from Matlab, Bangladesh to examine the relationship between fertility and multiple dimensions of religiosity. Consistent with evolutionary and related theories that religiosity strengthens cooperation, we find that public practice of religion is associated with higher fertility while private practice is associated with lower fertility. We also find that some measures of religious identity and relationships with co-religionists are associated with higher fertility, consistent with models emphasizing secularism and the effects of marginalization on religious minorities.

*Sng, Oliver (University of California, Irvine; olisng@uci.edu); Choi, Minyoung; & Ackerman, Joshua*

**The Ecology of Relatedness: How Living around Family (or Not) Matters**

SESSION #7: KIN PSYCHOLOGY SHAPES BEHAVIOR TOWARDS KIN (AND NON-KIN) [SYMPOSIUM]

How does living in an environment with many (or few) family relatives shape our psychology? To the extent that our species has experienced lifetime variation in the prevalence of kin in one's group, evolution should have selected for psychological flexibilities that are sensitive to this, and that shift behaviors in adaptive ways depending on whether kin are many or few. We present four studies—an archival analysis across countries, a correlational survey, and two experiments—that examine this. Across studies, we find that people who live in, or who imagine living in, ecologies where they are surrounded by more family relatives tend to (1) hold more interdependent self-construals/perceive themselves as more connected to others around them, (2) be more willing to fight for their group even at a risk to themselves, and (3) be more punitive of others who engage in highly anti-social behaviors. These effects are robust to a range of controls, and do not seem to be a result of simply being around more "ingroup" members. The current findings connect ideas from behavioral ecology and social

psychology, hold implications for understanding the origins of certain cultural differences, and highlight the utility of thinking about the ecology of kin.

*Smith, Andrew Marcus (University of California, Los Angeles, andrewmsmith@ucla.edu); Cartmill, Erica; & Barrett, Clark*

**Mindreading 'on the Ground': Comparing Third-Party Mental State Talk Across Four Languages**

SESSION #6: COGNITION

Mindreading, or the ability to impute others' mental states, is a capacity whose ontogeny is believed to have undergone strong positive selection for canalization across human evolutionary history. This claim is challenged by data suggesting that social phenomena like caregiver mental state talk may shape its development in early childhood and that there exist language communities wherein third-party mental state talk is prohibited. If true, mindreading may be less canalized and more variable across languages and cultures than current theories suggest. The current research explores this open question by comparing talk about others' mental states across L1 speakers of English, Korean, Mandarin Chinese, and Moroccan Arabic (N=224). Participants were shown video stimuli and recorded describing what they had seen. Descriptions were transcribed and coded for lexical references to third-party mental states. Counts were calculated for each description, scaled by description length, and modeled as a function of language, stimulus, and participant using hierarchical logistic regression. Our findings suggest that subject matter (understood here as stimulus content) most strongly predicts the frequency of mental state talk. However, a main effect of language was also observed, indicating linguistic differences in the rate of mental state talk.

*Smith, Kristopher M. (Washington State University, kristopher.m.smith@wsu.edu) & Pisor, Anne C.*

**Measuring long-distance orientation, the preference to form long-distance relationships**

SESSION #3: SOCIALITY

Long-distance friendships have offered access to non-local resources for people past and present across cultures. People interested in long-distance friendships should be motivated to seek out opportunities for long-distance friendships, such as by traveling and migrating, and maintain more long-distance ties in their social networks. However, not everyone can afford to actually form and maintain these relationships, and simply measuring long-distance friendships will not capture long-distance orientation (LDO). Here, we present initial steps to develop and validate a measure of LDO. In two online US samples of 500 total participants, participants with higher LDO reported more long-distance friends and more residential mobility as an adult, but only when perceived obstacles to travel were low. These associations hold when controlling for extraversion and openness to new experience. Interestingly, extraversion is negatively associated with long-distance friends and residential mobility when controlling for LDO, suggesting LDO and extraversion are measuring distinct motivational systems to pursue close- vs. long-distance friendships. We end by discussing LDO's relevance for scaling up collective action efforts involving cooperation at a distance, such as the management of common pool resources accessed by multiple communities.

*Sosa Colindres, Carlos (University of California, Santa Barbara, csosacolindres@gmail.com); Catena, Tikal; & Conroy-Beam, Daniel*

**How to Learn Your Mate Preferences**

SESSION #12: MATE PREFERENCES

How do we come to have our mate preferences? Research on human mate preferences predominately

focuses on species-typical or sex-typical aspects of preferences. However, prior work has found mate preferences to not only vary and be flexible, but also systematically adjust in relation to mate value and individual experience. Here we ask: how might a species-typical mating psychology give rise to individually tailored mate preferences? Specifically, we test the ability of a learning model to reproduce the ideal mate preferences of N = 1,044 participants using an agent-based modeling approach. We find that a model that iteratively adjusts mate preferences in response to feedback from potential mates can reproduce individual preferences with respectable accuracy. Exploring preference learning highlights under-explored but critical adaptive problems in the ontogeny of mate preferences. Furthermore, these results reveal possible algorithms underlying mate preference learning and suggest promising approaches for further exploring the dynamics of mate preferences.

*Stavang, Marius (Norwegian University of Science and Technology, marius.stavang@ntnu.no); Kennair, Leif Edward Ottesen; & Bendixen, Mons*

**Measuring single's romantic success with the "Singles' Mate acquisition Acceptance and Rejection Scale" (SMARS)**

SESSION #10: MATING V

As part of a research project on psychological characteristics of INCELs, we developed the "Singles' Mate acquisition Acceptance and Rejection Scale" (SMARS). SMARS measures single individual's mating efforts, and their experienced acceptance and rejection on the mating marked. While multiple measures of acceptance from one's current long-term partner already exists, SMARS is the first instrument to gauge romantic acceptance experienced by singles. Through an act nomination procedure, students (n=36) identified behaviors associated with pursuing a partner (80 items), acceptance (60 items) and rejection (58 items) of romantic and sexual partners. Participants (n=488, 36.1% men) reported the extent to which they had experienced and engaged in the identified behaviors during the last 30 days. Factor analyses suggest 5 dimensions for Acquisition behavior (1. Interest displays, 2. Short-term acquisition, 3. Long-term acquisition, 4. Location based, 5. Dating-app usage), 3 dimensions for Acceptance (1. Indirect, 2. Direct, 3. Online-acceptance) and 3 dimensions for Rejection (1. Indirect, 2. Direct, 3. Online-rejection). SMARS and sub-dimensions of SMARS demonstrated expected associations with romantic loneliness, sociosexual orientation, various personality indicators, satisfaction with singlehood and romantic and sexual encounters. SMARS will be employed in future research to identify patterns of mating experiences in normal single- and INCEL samples.

*Tan, Lynn K.L. (Singapore Management University, lynn.tan.2019@smu.edu.sg); Li, Norman P.; & Tan, Kenneth*

**Cash, Crowds, and Cooperation: The Effects of Population Density and Socioeconomic Status on Cooperation**

SESSION #3: COOPERATION III

Does population density influence peoples' cooperation rates? Moreover, might this influence of population density on cooperativeness vary across people with different levels of access to financial resources? While there is a vast literature examining cultural, inter- and intra-individual predictors of cooperation, there is a lack of research on how the interactive effects of ecological factors—such as population density and resource scarcity—may jointly influence cooperativeness. From an adaptationist perspective, population density signifies the presence of social competition and people facing resource scarcity would face pressures to modify their resource allocation strategy due to self-preservation motivations. We hypothesise that people under resource scarcity are sensitive to cues of population density and become less cooperative under cues of high (versus low) density (H1). In contrast, people who are resource-abundant are not sensitive to changes in ecological conditions because their surplus in

resources affords them a sense of control when dealing with social competition (H2). Results from two studies (1 correlational and 1 experimental) showed a significant interaction between population density and resource availability that supports both hypotheses. Our findings provide key insights that cooperation may vary as a function of interacting ecological factors.

*Thomas, Andrew G. (Swansea University, research@agthomas.net); Harrison, Sophie; Mogilski, Justin K.; Stewart-Williams, Steve; & Workman, Lance*

**Exploring Polygamous Interest in Western Cultures: Insights from Two Studies on Heterosexual Online Samples in the UK**

SESSION #3: EVOLUTIONARY ANALYSIS OF MULTI-PARTNER INTIMATE RELATIONSHIPS [SYMPOSIUM]

Polygamy is a type of relationship where one person has multiple committed partners, and each partner is only involved with that one person. It is a form of consensual non-monogamy and was likely a common aspect of mating in the past that posed challenges for our ancestors. However, polygamous psychology is not well studied in Western cultures, which raises questions about the prevalence of interest in polygamy and whether this interest is related to personal circumstances. We conducted two studies to examine polygamous interest in heterosexual online samples from the UK. In the first study, modest interest was found for polygamous relationships overall. Men were six times more open to polygyny than women, but there was little sex difference in openness to polyandry. The second study focused on polygyny and added status-linked traits as predictors. The results of the first study were broadly replicated, though the status-linked traits did not predict polygynous interest specifically. Instead, sociosexuality and male intrasexual competitiveness predicted general interest in multi-partner relationships. Overall, interest in polygamy appears to emerge despite social discouragement, and sex differences in interest track the relative costs and benefits associated with it. However, there is no compelling evidence that polygamous interest is uniquely calibrated to personal condition when compared to other forms of multi-partnering.

*Tolliver, Mikayla (University of Arkansas, mdtolliv@uark.edu); Brown, Mitch; & Makhanova, Anastasia*

**Women's Access to Resources Affects Their Perceptions of Masculinized versus Feminized Faces of Other Women**

SESSION #4: INTRASEXUAL COMPETITION

Belonging is important for survival. Consequently, people monitor their social environments for signs of inclusion and exclusion. For women, social monitoring is higher in the luteal (vs. follicular) phase of the menstrual cycle and underpinned by increases in progesterone. Hormonal contraceptives (HCs) contain synthetic progesterone—progestin—that may also affect social monitoring. We examined whether cycle phase and HC use (oral contraceptive and IUD) affected how women perceived neutral faces. Specifically, we hypothesized that women would project greater emotions indicating affiliation or exclusion onto neutral faces in the luteal phase, compared to women in the follicular phase, and explored potential effects of HC use. Although we did not find differences between follicular and luteal phase, oral contraceptive users perceived more rejection and stress (but not more sociality) on neutral faces than did other groups. Findings suggest that hormonal changes due to oral contraceptive use may affect women's social monitoring.

*Tooby, John (University of California, Santa Barbara, tooby@anth.ucsb.edu)*

**The Outrank Game and the evolved inner structure of social communicative contests**

SESSION #2: COOPERATION II

Power is conceptualized as the relative ability to determine outcomes in situations of conflict. Adaptations that embody strategies to increase power will be the focus of intense selection. Factors underlying power include the individual ability to inflict costs; the individual ability to confer or withhold benefits; the individual and mutual ability to cohere an alliance to inflict costs; and the individual and mutual ability to cohere an alliance to confer or withhold benefits. The successful application of power depends on converging on a shared representation of relative power: Entitlement is the actor's representation of her own power and so the variable that governs her own choices (bids). In contrast, rank can be defined as the variable(s) representing the actor's power as distributed among the minds of one or more others, and so govern others' actual responses to her bids. The Outrank Game is the orchestration of interactions where the functional product is the relative adjustment of rank through provoked public tests and broadcasts of outcomes by the winner(s) on others. Because alliance-based formidability is subject to greater volatility and uncertainty, major shifts in rank can be engineered by the rapid mobilization of dominating alliances using "moral", political, and social pretexts.

*Twardus, Oliver (University of Guelph, otwardus@uoguelph.ca)*

**The Impact of Ecology on Online Behavior: Identifying and Mitigating Evolutionary Mismatch in Online Environments**

SESSION #6: EVOLUTIONARY MISMATCH

Online social media environments are a ubiquitous part of the day-to-day life of millions of individuals. Globally, billions of hours are spent every day on social media sites to connect with others, build online communities, cultivate reputation, or earn a livelihood. Despite the pervasiveness of social media, little focus has been placed on understanding how these environments differ from "real-world" environments, and how these differences influence human behavior. Most social media sites share a series of features that significantly differ from physical environments, such as: increased anonymity, increased social mobility, global competition, and extremely high inequality of influence. These differences have ramifications for the degree of cooperation that can be expected within an environment, the degree of risk individuals will be willing to take to build reputation, and the expected risks and rewards for (dis)honest signaling. Drawing on the foraging patch model, social media sites can be compared to help us understand how the ecological features of social media environments influence human behavior. In doing so, more effective interventions can be devised for contemporary online issues, including misinformation, online harassment, and impersonation.

*Tybur, Joshua (Vrije Universiteit Amsterdam, j.m.tybur@vu.nl)*

**What the COVID-19 Pandemic Reveals About the Behavioral Immune System**

SESSION #11: PATHOGENS

Humans – like other mammals – possess mental mechanisms specialized for detecting and motivating the avoidance of pathogens. While research on the outputs of these mechanisms has surged in recent years, less work has clarified the nature of the inputs into these mechanisms. The COVID-19 pandemic allows for a test of the degree to which socially-transmitted information about respiratory viruses and conscious concerns about infectious disease correspond with changes in putative behavioral immune system outputs. This talk summarizes findings from a longitudinal study of over 1000 Dutch individuals surveyed in May 2020, February 2021, October 2021, and June 2022. Results indicate that, while conscious concerns about infectious disease varied substantially across assessments, propensity to experience disgust, negativity toward immigrants, and comfort with physical social contact did not.

Further, within-person changes in conscious concerns about infection did not correspond with changes in these other variables. These results speak against the idea that the mere presence of a novel respiratory pathogen – or the type of socially-transmitted information about infection that surged during the pandemic – acts as input into mechanisms that output disgust, motivations to avoid social contact, or negativity toward foreigners. Implications for the parasite stress and behavioral immune system literatures will be discussed.

*Vaillancourt, Tracy (University of Ottawa, tracy.vaillancourt@uottawa.ca); Eriksson, Mollie; Brittain, Heather; Krygsman, Amanda; Farrell, Ann; Davis, Adam; Volk, Anthony; & Arnocky, Steven*

**Social Media Friendship Jealousy and its Longitudinal Links to Mental Health**

SESSION #6: MENTAL HEALTH

A new measure to assess friendship jealousy in the context of social media was developed. This one factor, 10-item measure was psychometrically sound, showing evidence of validity and excellent reliability in three samples of North American adults (Study 1, n = 514; Study 2, n = 516; Study 3, n = 399). Women reported more social media friendship jealousy than men (Study 2, Study 3) and younger women had the highest levels of social media friendship jealousy (Study 2). Social media friendship jealousy was associated with lower friendship quality (Study 1) and higher social media use and trait jealousy (Study 2). The long-term mental health outcomes of social media friendship jealousy indicated increases in internalizing symptoms, controlling earlier symptoms (Study 3). Specifically, higher anxiety predicted more social media friendship jealousy, which in turn, led to increases in depression and anxiety and higher depression predicted more social media friendship jealousy. These results suggest bidirectional relations between social media friendship jealousy and mental health problems. Anxious and depressed adults may be predisposed to monitor threats to their friendships via social media and experience negative consequences because of this behaviour. Although social media interactions can be associated with positive wellbeing and social connectedness, our results highlight that they can also undermine friendships and mental health due to jealousy.

*Van Horn, Andrew (Case Western Reserve University, andrew.vanhorn.vh@gmail.com) & Stewart, Alexander J.*

**Entropy and complexity: explaining variation in the compositional structure of traditional decorative artworks**

SESSION #2: PERSONALITY & PERCEPTION

One of the proposed evolutionary explanations of human production of art is that it functions to transmit aesthetic preferences. Certain statistical properties of both Western and indigenous art are similar to those of natural scenes, and evidence suggests that artists do not explore the entire space of possible statistical attributes in their compositions. As such, aesthetic preferences may be related to the structure of the natural environment, particularly in the traditional decorative art of indigenous societies. In other words, the transmission of abstract information about the environment via art may have consequences for natural selection. Thus, we would expect characteristics of indigenous art to vary predictably across environments. We used 2 related measures, permutation entropy and statistical complexity, to characterize the compositional structure of representative traditional artworks from 18 different societies in Africa, Asia, Oceania and the Americas. We found no correlation between compositional structure and local environments (as measured by latitude and climate classification) or subsistence patterns. We did, however, find a clear difference in compositional structure between societies in the Eastern and Western hemispheres. We suggest a memetic founder effect may be responsible for this observation.

*Vance, Gavin (Oakland University, gvance@oakland.edu); DeLecce, Tara; Meehan, Madeleine K.; & Shackelford, Todd K.*

**Depth, Speed, and Duration: Determinants of Semen Displacement Using Artificial Models**

SESSION #7: MATING II

Previous work has provided evidence that the human penis evolved to be an efficient semen displacement device (Gallup et al., 2003). Research has also shown that men report greater thrusting speed, thrusting depth, and longer duration of intercourse when they perceive themselves to be at greater risk of experiencing sperm competition (Goetz et al., 2005). However, the effect of these copulatory behaviors on semen displacement has not been measured. The present research intended to replicate and extend the work of Gallup et al. (2003) using improved models and methodology. Specifically, we aimed to measure semen displacement as a function of coronal ridge prominence, thrusting speed, thrusting depth, and duration of intercourse using a variety of inanimate models to represent penises, vaginas, and ejaculate. Results showed that semen displacement increased as a function of coronal ridge prominence, greater thrusting speed, thrusting depth, and longer duration of intercourse.

*von Rueden, Chris (University of Richmond, cvonrued@richmond.edu)*

**Unmaking egalitarianism: Comparing sources of political change in an Amazonian society**

SESSION #8: DISPATCHES FROM SOUTH AMERICA: INSIGHTS FROM STUDIES IN ECOLOGICALLY DIVERSE COMMUNITIES [SYMPOSIUM]

Politically egalitarian societies were likely more common in pre-history than in recent millenia. Why did societies become more hierarchical? Answers to this question remain debated, based on evidence largely drawn from archaeological case studies or comparison of societies from the ethnographic record. I suggest that modern small-scale societies transitioning to market economies can provide complementary tests of the sources of political inequality. I first describe moderate variation in men's influence during community meetings (i.e. political inequality) across four relatively egalitarian Tsimane villages in the Bolivian Amazon, as well as within one of these villages over twelve years. I then assess the roles of (1) sharing networks, (2) patron-client relationships, and (3) leadership opportunity in explaining that variation. Greater political inequality does not associate with reduced sharing but does associate with concentration of conflict mediation in the most influential men (per leadership opportunity) and more equivocally with intra-village paid labor (per patron-client models). In general, I argue that we need more micro-scale studies of societies in transition to understand why individuals come to tolerate greater political inequality.

*Wade, T. Joel (Bucknell University, jwade@bucknell.edu); Fisher, Maryanne L.; & Davis, Hannah*

**Give Me Some Sugar: Preferred Sugar Daddy Characteristics**

SESSION #10: MATING V

There are numerous types of male-female relationships; some are transactional in nature. One common type of a transactional relationship involves a Sugar Daddy, who is usually an older man who confers money, gifts, connections, or other benefits on typically younger women called Sugar Babies. University students are particularly sought as Sugar Babies due to financial need and youth. In 2 studies we ascertained the characteristics women desire in a Sugar Daddy (Study 1, N = 105, 18-23), and which of those characteristics are rated as most important (Study 2, N = 204, Mage = 21.31). In Study 1, we found 379 traits, reduced to a list of 15 consensus traits (kind, wealthy, attractive/sexy, generous, old, respectful, funny, intelligent, charismatic, normal, connected, honest, single, understanding, non-pressuring/doesn't expect much/not clingy). The most preferred characteristics from Study 2 were

hypothesized to involve resources, traits denoting good genes (attractiveness), and a willingness to share resources. The results were consistent with the hypotheses. In Study 2 women rated the traits: generosity, attractive/sexy, and not clingy as the most important. The traits: funny, connected, and old were rated least important. These results are discussed in terms of prior research on women's mate preferences.

*Wallner, Bernard (University of Vienna, bernard.wallner@univie.ac.at) & Schaschl, Helmut*

**Population-specific, recent positive directional selection suggests adaptation of human male reproductive genes to different environmental conditions**

SESSION #4: GENETICS/EPIGENETICS

Background: Recent human transcriptomic analyses revealed a large number of testis-enriched genes, which are involved in spermatogenesis. Using comprehensive transcriptomic data, we asked whether positive selection influenced the evolution and variability of testis-enriched genes in humans. Methods: We used two methodological approaches to detect levels of positive selection, namely episodic positive diversifying selection in the human lineage within primate phylogeny, potentially driven by sperm competition, and recent positive directional selection in contemporary human populations, which would indicate adaptation to different environments. Results: In humans we found only the gene TULP2, for which no functional data are yet available, is subject to episodic positive diversifying selection. Using less stringent statistical criteria the gene SPATA16 has a pivotal role in male fertility and for which episodes of adaptive evolution have been suggested, which displays a putative signal of diversifying selection in the human branch. At the same time, we found evidence for recent positive directional selection acting on several other human testis-enriched genes that play important roles in human spermatogenesis and fertilization. Most of these genes are population-specifically under positive selection. Conclusion: Episodic diversifying selection, possibly driven by sperm competition, was not an important force driving the evolution of testis-enriched genes in the human.

*Wang, XT (XiaoTian (the Chinese University of Hong Kong (Shenzhen), xtwang@cuhk.edu.cn) & Lu, Junsong*

**Delay Discounting across the Lifespan – A Life-History Theory Approach**

SESSION #9: LIFE HISTORY II

With a finite lifespan and limited resources, humans constantly make tradeoffs between a smaller-and-sooner (SS) reward and a larger-and-later (LL) reward based on the task priority of survival, growth, and reproduction in the given stage in life or across different stages in the lifespan. Such an intertemporal choice is typically gauged by the metric of delay discounting -- the degree of a future reward is discounted. Research on the developmental trajectory of delay discounting has yielded inconsistent results. Relevant theories provide contradictory predictions. We evaluated these theories based on meta-analyses of 172 effect sizes extracted from 102 articles that examined age differences in delay discounting, providing up-to-date the most comprehensive review of the topic. Our meta-regression results suggest a U-shaped relationship in discounting rate. We developed a new calculus method to recover this nonlinear function. Our analysis demonstrated that middle-aged people around 44 exhibited the lowest discounting rate. We propose that the U-shaped lifelong change in delay discounting results from the tradeoff between mortality, fertility, and parenting. The higher discount rates in the early and late life stages are due to higher mortality uncertainty and lower fertility, while the turning point is postponed post-fertility decline due to parenting needs.

*Wertz, Annie, E. (Max Planck Institute for Human Development, wertz@mpib-berlin.mpg.de); Schlegelmilch, Karola; & Rioux, Camille*

**Exploring food learning cues in 12-month-old infants**

SESSION #3: DEVELOPMENTAL

Food learning early in life relies largely on social learning. Previous research has shown that infants learn a food is safe to eat when they directly observe someone else eating it. However, the role of other forms of food-related social information remains largely unknown. Food processing techniques have been an important part of human food consumption over evolutionary time and often reduce the toxicity of raw foods. Here we investigate whether 12-month-olds view cues of food processing (e.g., cutting a root vegetable) as an indicator of edibility. To test this, infants watch side-by-side videos of an actor performing one action on one type of novel food (a purple carrot) and a different action on a different type of novel food (a white parsnip). We examine three actions across conditions: eating, cutting, and touching. Infants' gaze is recorded with an eye-tracker to assess (i) which action they prefer to attend to and (ii) their pupil dilation. Infants are then given a choice between the two root vegetables seen in the video. We predict that infants will look longer and show increased pupil dilation for the food-relevant actions. Our preliminary results suggest that infants look longer at eating actions than touching actions.

*Williamson, Christopher (Modern Wisdom, chris.williamson88@gmail.com)*

**Podcast Mastery: How to entertain and make an audience remember your name when guesting on podcasts as a science communicator**

SESSION #9: COMMUNICATING EVOLUTIONARY SCIENCE TO THE PUBLIC: HOW TO PITCH, PARAPHRASE, AND PERSONALIZE SCIENCE TO MAKE IT APPEALING TO A BROAD AUDIENCE [SYMPOSIUM]

Podcasts are now one of, if not THE primary medium that academics and science communicators get their names out there to the general public. It allows you to grow an audience and promote a book or new study immediately. I've run a podcast for 5 years and published 600+ episodes including 100+ NYT Best Selling Authors including David Goggins, Jordan Peterson, Jocko Willink, Ryan Holiday, Robert Greene, James Clear, Andrew Huberman and more. The show has reached over 150 million people so I understand what podcast episodes work well and gain reach, and which ones don't. In this session, I will coach the crowd on the best strategies to communicate their ideas on a podcast. I will give tips on how to prepare, discuss research findings, and pace the conversation to maximize listeners' engagement with the material. I will also offer advice on how to maximize exposure once your podcast is published and optimize the sound of your recording. Lastly, I will answer any questions that the audience has about being on or starting a science podcast of their own.

*Wilke, Andreas (Clarkson University, awilke@clarkson.edu); DeLaBruere, Gracie; Spilman, Hannah; Garcia, Yadhira; Pedersen, Steven; Han, Bang-Geul; Barrett, H. Clark; Todd, Peter M.; & Wertz, Annie*

**Hot hand thinking in children**

SESSION #3: DEVELOPMENTAL

A tendency to perceive illusory streaks or clumps in random sequences of data—the hot hand phenomenon—has been identified as a human universal tied to our evolutionary history of foraging for clumpy resources. The current research investigates how misperception of randomness and ecologically relevant statistical thinking develops ontogenetically. Based on our work with adults, we developed three iPad-based decision-making tasks to assess how 3- to 10-year-old children decide that sequential events will continue in a streak or not, their understanding of randomness, and their ability to reason in spatially dependent terms. Our NSF funded research study collected data at research sites in the United States (n=160) and in Germany (currently n=188). Our analyses suggest that children, indeed, hold strong expectations of clumpy resources when they search through and reason with various statistical distributions.

*Yavari, Bryan (Arizona State University, byavari@asu.edu) ; Alcaraz, Gissel Marquez; Aktipis, Athena; & Baciu, Cristina*

**Kombucha in the Human Evolutionary Context**

SESSION #11: PATHOGENS

Humans have fermented foods and beverages for at least 10,000 years, and this process of fermenting has been significant for human survival, allowing for preservation and increased nutritional value to food. Additionally, fermenting food uniquely allows for human social interactions as the by-products affect human behavior ranging from affecting mental health to altering behavioral inhibition. Kombucha has existed for at least 2,000 years and is a fermented tea beverage that consists of black tea, sugar, yeast and bacteria. A vital component of Kombucha is the biofilm often known as "SCOBY," which rests on top of the liquid and can lend insight into the evolved interactions between Bacteria and Yeast. The effects of Kombucha on human health, including the gut microbiome, have been studied and provide evolutionary insights into public health. We have seen through observational and experimental studies that cooperation and conflict occur inside kombucha – the microbes within the drink work together to maintain stability and defend against microbial invaders that could invade it. Examining Kombucha can help us understand many complex dimensions of human interaction with foods, culture, and ecology.

*Yong, Jose (Northumbria University, jose.yong@northumbria.ac.uk); Lim, Amy; & Li, Norman*

**When social status gets in the way of reproduction in modern settings: An evolutionary mismatch perspective**

SESSION #6: EVOLUTIONARY MISMATCH

Low fertility is a growing concern in modern societies. While economic and structural explanations of reproductive hindrances have been informative to some extent, they do not address the fundamental motives that underlie reproductive decisions and are inadequate to explain why East Asian countries, in particular, have such low fertility rates. The current presentation advances a novel account of low fertility in modern contexts by describing how modern environments produce a mismatch between our evolved mechanisms and the inputs they were designed to process, leading to preoccupations with social status that get in the way of mating and reproductive outcomes. In particular, we focus on how modernity influences fertility through social status disparity, social comparisons, and life history factors as mechanisms of reduced reproductive motivation. We also utilize developed East Asian countries as a case study to further highlight how culture may interact with modern features to produce ultralow fertility, sometimes to the extent that people may give up on parenthood or even mating altogether. Through our analysis, we integrate several lines of separate research, elucidate the fundamental dynamics that drive trade-offs between social status and reproductive effort, add to the growing literature on evolutionary mismatch, and provide an improved account of low fertility in modern contexts.

*Zerbe, James (Arizona State University, jzerbe627@gmail.com); Morgan, Thomas; & Patton, John*

**Accuracy and coalitional bias in social evaluations in an Amazonian forager-horticulturalist community**

SESSION #4: SOCIAL INFORMATION

Humans are hypothesized to rely on adaptive abilities of socially evaluating conspecifics in decision-making processes in cooperative and competitive contexts. However, the plausibility of this hypothesis has been weakened given the disagreement that Hadza foragers exhibit regarding each other's cooperative dispositions and moral character (Smith & Apicella, 2019). Here, a Bayesian cultural

consensus model it developed to assess the accuracy with which individuals from an indigenous Amazonian community mentally represent the relative attributes of their conspecifics with data generated by a photo-ranking methodology. The model allows expression of agreement and consensus in terms of probabilities while estimating individual variation among rankers in their perception thresholds (how different must people be before a ranker makes an accurate distinction among them) and their uncertainty when judging conspecifics. In this way, social evaluation ability is assessed in the domains of prosocial reputations, social influence attributes, hunting ability, physical traits, and personality characteristics. Further, we assess an under explored source of potential disagreement in participant rankings that stems from coalitional bias in a relevant ethnographic context (Patton, 2000). Results forthcoming.

*Zhao, Amy (University of Queensland, amy.zhao@uq.net.au); Harrison, Keagan; Holland, Alexander; Wainwright, Henry; Ceccato, Jo-Maree; Sidari, Morgan; Lee, Anthony; & Zietsch, Brendan*

**Objectively Measured Facial Traits Predict In-person Evaluations of Facial Attractiveness and Prosociality in Speed-dating Partners**

SESSION #5: PERCEPTION II

Studies that have investigated the attractiveness of facial averageness, masculinity, and similarity have relied on ratings of images of faces. It is important to establish whether past findings translate to real-life, face-to-face evaluations of potential partners; lack of effects in this context would cast doubt on the evolutionary relevance of previous findings. Further, previous studies have not considered that, by definition, faces that are more similar to the average face (i.e. higher in averageness) tend to be more similar to raters' faces. Therefore, image-rating studies which have separately found that averageness and (in some cases) similarity are attractive, are confounded. We address these issues with a laboratory-based speed-dating study of 682 participants whose facial traits were objectively quantified using facial landmarks. (We also consider measures using deep neural networks.) We found that averageness and similarity (to the rater) predicted facial attractiveness ratings separately, but neither were uniquely predictive when combined in the same model. Similarity, but not averageness, predicted prosociality ratings. Facial masculinity was positively and negatively associated with facial attractiveness ratings of men and women, respectively. These results confirm some key findings from image-rating studies but raise questions about others, notably the attractiveness of facial averageness.

*Zietsch, Brendan P. (The University of Queensland, zietsch@psy.uq.edu.au)*

**Resolving the evolutionary paradox of consciousness**

SESSION #6: COGNITION

Evolutionary fitness threats and rewards are associated with subjectively bad and good sensations, respectively. Initially, these correlations appear explainable via adaptation by natural selection. But here I analyse the major metaphysical perspectives on consciousness – physicalism, dualism, and panpsychism – and conclude that none help to understand the adaptive-seeming correlations via adaptation. I also argue that a recently proposed explanation, the phenomenal powers view, has major problems that mean it cannot explain the adaptive-seeming correlations via adaptation either. So the mystery – call it the evolutionary paradox of consciousness – remains. Some have used this mystery to argue for non-naturalistic (e.g. theistic) explanations. But I propose a naturalistic, non-adaptive explanation of the adaptive-seeming correlations: namely, 'sensational associative learning'. In this perspective, pairing of particular sensations with unconditioned stimuli – fitness rewards or threats – cause

the sensations themselves to come to be interpreted as good or bad, respectively. Related explanations are available for adaptive-seeming structural aspects of sensations. This view appears compatible with physicalism, panpsychism, and interactionism, but not epiphenomenalism.

# POSTER ABSTRACTS

1. **Perceived promiscuity mediates women's aggression toward tattooed women**
   *Steven Arnocky (Nipissing University, stevena@nipissingu.ca), Megan MacKinnon, Gianni Chaput, & Adam C. Davis*
   The value of sex fluctuates with its availability (Baumeister & Vohs, 2004). Thus, women pressure women who make sex readily available to restrict the supply and increase the price of sexual access (Baumeister & Twenge, 2002). Images of women with tattoos are rated as more promiscuous and receptive to casual sex (Broussard & Harton, 2018; Swami & Furnham, 2007), and on average, women with tattoos are more sexually active and open to casual sex than their untattooed same-sex peers (Guéguen, 2012; Skoda et al., 2020). Accordingly, we expected that women would derogate a tattooed (versus non-tattooed woman), and that this relationship would be mediated by increased perceptions of the tattooed woman's unrestricted sociosexual orientation (SOI). Respondents (120 women, 111 men) were exposed to a photo of a young woman with or without tattoos, and subsequently completed measures of perceived target SOI, willingness to gossip about, and dehumanization of, the target. Results showed that women (but not men) were more willing to spread negative gossip about, and to dehumanize, a tattooed woman, and that these links were mediated by greater perceptions of the target's unrestricted SOI. Findings suggest that women strategically aggress against women displaying cues to promiscuity.

2. **The Development of Specialized Fears**
   *Paola Alejandra Baca (University of Texas at Austin, paolabaca@utexas.edu), Rebecka K.Hahnel-Peters, & David M. Buss*
   Specialized fears are thought to be psychological adaptations that influence emotional, cognitive, and behavioral protections against the fear target. These fears are hypothesized to come online developmentally at around the period in which they would have been relevant through our ancestral history. Our study aims to investigate the age in which the fear of sexual assault comes online including predictable gender differences and changes in the motivation underlying the fears and anxieties. We do this through asking participants aged 8-15 how afraid they would be being in a room with a man vs. woman, an acquaintance vs. stranger, and having the person either touch them, have a baseball bat, or be neutral. Our research ultimately aims to help inform education, parenting, and public safety policy through understanding the potential mismatch between children's fears and actual threats. Data will be collected and analyzed before the Human Behavior and Evolution Society (HBES) 2023 conference.

3. **Use and Misuse of Evolutionary Psychology in Online Antifeminist Communities: The Politics of Female Mating Strategies**
   *Louis Bachaud (University of Kent, louis.bachaud@gmail.com) & Sarah Johns*
   While early evolutionary accounts of female sexuality insisted on coyness and monogamous tendencies, evidence from the field of primatology started challenging those assumptions in the 1970s. Decades later, there exists many competing and overlapping hypotheses stressing the potential fitness benefits of female short-term and extra-pair mating. Female mammals are now

seen as enacting varied and flexible reproductive strategies. This is both a victory for science, with a better fit between theory and reality, and for feminism, with the downfall of narrow stereotypes about female sexuality. However, evolutionary hypotheses on female mating strategies are routinely invoked among the antifeminist online communities collectively known as "the manosphere". Based on the largest qualitative analysis of manosphere discourse to date, this study shows how these hypotheses are interpreted in sometimes violently misogynistic online spaces. Indeed, evolutionary scholars might be surprised to see sexist worldviews reinforced by the "dual mating strategy" and "sexy son" hypotheses, or by the latest research on the ovulatory cycle. The manosphere has its own version of Evolutionary Psychology, mingling cutting-edge scientific theories and hypotheses with personal narratives, sexual double standards, and misogynistic beliefs. After analyzing this phenomenon, this article suggests ways to mitigate it.

**4. Maybe it's Me, Maybe it's Ovulation: Functionally Biased Errors in Self-Perceived Attractiveness Across Two Ovulatory Cycles**

*Vidhi Bansal (Oklahoma State University, vidhi.bansal@okstate.edu), Juliana E. French, Emma E. Altgelt, & Andrea L. Meltzer*

Women report ovulatory-based increases in self-perceived physical attractiveness, and such enhanced perceptions of attractiveness could reflect a perceptual error such that women may be over-perceiving their attractiveness at high fertility. Importantly, given the tendency for people to mate assortatively, such over-perceptions could carry risks (e.g., rejection)—especially for relatively less-attractive women. Any ovulatory-based errors in self-perceived attractiveness should thus depend on how attractive a woman objectively is. To test this, 297 women participated in a longitudinal study spanning two ovulatory cycles. At a baseline lab session we took participants' photographs, which we (a) coded for facial attractiveness and (b) digitally altered to be incrementally less and more attractive. Twice at projected high fertility and twice at projected low fertility, participants chose from an array of randomly ordered 11 images (i.e., their actual photo, five increasingly less-attractive photos, and five increasingly more-attractive photos) the image they thought was the real photo of themselves. Indeed, on days they were more (versus less) fertile, highly attractive (but not less attractive) women tended to select a photo that was altered to be more attractive. Finally, these within-person associations only emerged among women who were not using a hormonal contraceptive and were, thus, naturally cycling.

**5. Predictors of the Willingness to Tolerate Relationship Baggage**

*Arial S. Bloshinsky (University of Arkansas, arib@uark.edu) & Anastasia Makhanova*

Mate choice paradigms tend to focus solely on positive qualities of a mate. In reality, however, people often end up in relationships with mates who have costly qualities (i.e., "baggage"). We explored individual differences that may underlie whether a person would be willing to endure the costs of such baggage by forming and maintaining relationships with mates who may need more attention, care, and effort from their romantic partner. Across two studies, we asked participants to complete individual difference measures and a questionnaire about whether they would be willing to stay with someone and tolerate certain types of baggage in a relationship. We found support for our hypotheses and replicated that people may stay with someone with baggage because they are: (1) agreeable, empathetic, and compassionate (2) insecure about themselves and their body image,

and (3) have more unrestricted SOI attitudes. Some associations were moderated by sex and relationship status.

6. **Women who use the internet for dating perceive biased sex ratios, both on- and offline**
*Krystina Boyd-Frenkel (University of Californa, Irvine, kboydfre@uci.edu), Oliver Sng, & Joshua Ackerman*
Every day, people consume mass quantities of digital media using a variety of sources. However, receiving information transmitted through a screen is a phenomenon that did not exist in our ancestral past. This work explores how interaction with the online ecology affects perceptions of sex ratio in an online environment and how the online ecology can affect perceptions of the actual physical ecology people live in, creating an evolutionary mismatch. Using data collected across 8 U.S. states to explore the perceptions of online and offline perceptions of sex ratio, secondary data analysis (N = 844) was performed. These exploratory results suggest that women who use the internet for dating (1) perceive the sex ratio of the internet as more male-biased, and (2) also perceive the sex ratio of their physical (non-internet) ecology as more male-biased. Additionally, perceptions of more male-biased sex ratios, both online and offline, predict more risky health behaviors. These findings suggest that, for women, perceptions of the online ecology's sex ratio may "spill over" into perceptions of the physical ecology's sex ratio when the internet is used for dating. This leads to the potentially novel implication of psychological online-offline "spillover" effects on perceptions of ecology and behavior.

7. **Male nipple erection engenders similar emotions as female nipple erection but triggers different altruistic reactions and sexual expectations**
*Rebecca Burch (State University of New York at Oswego, rebecca.burch@oswego.edu) & David Widman*
Research on nipple erection shows that men and women perceive female nipple erection to both cue and trigger positive emotions and perceive these women as less intelligent, less moral, and more sexual. Research on nipple erection has not examined what male nipple erection cues or elicits. In this study, male models with and without nipple erection were used as stimuli and men and women were asked what emotions these stimuli elicited, what they expected and were willing to do for these men (study 1), and their presumed sexual experiences (study 2). Just as with female nipple erection, men and women perceived male nipple erection as indicating positive emotions and sexual interest. Men did not differ in their willingness to do favors for or interact with men with nipple erection, but women were less likely to engage in either. In sum, men and women perceive male nipple erection to cue the same emotional states as female nipple erection, but react to it very differently, with men being indifferent and women being avoidant.

8. **Perception of female nipple erection by a Western European sample**
*David Widman (Juniata College, widman@juniata.edu), Rebecca Burch, & T. Joel Wade*
Burch and Widman reported on the perception of women with nipple erection in USA samples. They found that male viewers felt sexier, perceived the stimulus woman as feeling sexier, and were more likely to behave altruistically when assessing women with nipple erection. They also found that both

men and women perceived women with nipple erection as less intelligent, less moral, more sexually manipulative, more sexually active, and less sexually healthy. However, these US samples may have been biased due to cultural factors. The present study asks the same questions about women with nipple erection but in a Western European sample, as we expect they will have had greater exposure to women's nipples and the various circumstances that can cause erection relative to a US sample. The results indicated that the Western European sample viewed women with nipple erection very differently from the US sample, not perceiving enhanced sexiness, enhanced preference for altruism, nor as objectified. They did, however, see them as more likely to engage in a variety of sexual behaviors. These findings are consistent with our hypothesis that the additional exposure of Western European cultures to women's breasts and nipples dampens the perceived sexual aspect of erect nipples.

**9. The possible influence in psychological distance to competition in intrasexual competition in women.**

*David Widman (Juniata College, widman@juniata.edu)*

When priming intrasexual competition (IC), changes in the DV of interest are generally taken as prima facie evidence of IC; few have tried to independently measure IC. Studies here replicate and extend one such state measure of IC, words taken from the PANAS with additional competition words. In the present studies, we used the PANAS-X with an added Competitive subscale. One study used a vignette manipulation and the other a sex ratio manipulation. Participants then responded to the PANAS-COMP, the Intrasexual Competition Scale (ICS) and the Intrasexual Rivalry Scale (IRS). Results indicated that neither manipulation resulted in differences on the ICS or IRS. There were differences on the negative and competitive subscales of the PANAS-COMP, but only for the vignettes; sex ratio did not result in differences. These results suggest that different IC primes may not be accessible by measures of IC. One explanation may be that the vignettes specify a target while unbalanced sex ratios do not. This could create a difference in the "psychological distance" to a target. Studies in non-human animals have shown that distance and time to reward affects the types of responses and CRs that are supported (e.g., behavior systems, Timberlake and Lucas, 1989).

**10. Cross-Cultural Perceptions of External Ejaculation in Pornography**

*Gareth Craze (Western Sydney University / University of Economics Ho Chi Minh City, gareth.craze@isb.edu.vn) & Catherine Salmon*

The facial cumshot is one of the most iconic images to be found throughout modern pornography. Instances of external ejaculation on a recipient's face are near-ubiquitous in their frequency; particularly (though not exclusively) within mainstream heterosexual pornography. Previous research (Salmon & Hehman, in press) has found that male perceptions of facial cumshot imagery were influenced by both the ejaculate recipient's affect, and by the viewer's sexual orientation and pursuit of short- or long-term mating strategies. Conversely, female perceptions were influenced by a wider range of individual factors (including their own self-perceived mate value, pathogen disgust, religiosity, and Dark Triad personality traits). The present study seeks to cross-culturally extend on these findings by examining perceptions of facial cumshot imagery within a non-WEIRD sample drawn from Vietnam; a nation in which pornography is nominally illegal and subject to considerably greater cultural taboo compared to its relative acceptance in the West. Sex differences in perceptions of external ejaculation images are analyzed, as well as the influence of the sex and

expressed affect of the recipient of the ejaculation, in addition to a number of individual difference factors, including sexual orientation, religiosity, Dark Triad personality traits, mate value, sociosexuality, and disgust sensitivity.

**11. Fantasy Made Flesh - A Network Analysis of the Reciprocal Relations Between Sexual Fantasies, Pornography Usage, and Sexual Behavior**

*Maximilian von Andrian-Werburg (University of Würzburg, maximilian.andrian@uni-wuerzburg.de)*

Based on different theories in media research (3AM, catalyst model of violent crime, reinforcing spirals model), we explore the relationship between pornography use, sexual fantasy, and behavior. We suggest that pornography use appears so persistent across time and culture because it is related to a human universal, the ability to fantasize. Consequently, pornography use seems to be an opportunity to acquire media-mediated sexual fantasies. We believe that pornography use interacts with sexual fantasies and, to a much weaker extent, with sexual behavior. To assess our assumptions, we conducted a network analysis with a large and diverse sample of N = 1338 hetero- and bisexual participants from Germany. Analyses were done separately for men and women. Our network analysis clustered the psychological processes around the interaction of sexual fantasies, pornography use, and behavior into communities of interacting items. We detected meaningful communities (orgasm-centered intercourse, BDSM) consisting of sexual fantasies and behavior, with some containing pornography. However, pornography use was not part of communities we perceive to account for mainstream/everyday sexuality. Instead, our results show that non-mainstream behavior (e.g., BDSM) is affected by pornography use. Our study advocates a more interactionist view of human sexuality and media use.

**12. Heterosexual Men's Visual Attention to Gynandromorphic Stimuli**

*Lambert Heatlie (University of Lethbridge, lambert.heatlie@uleth.ca), Lanna Petterson, & Paul L. Vasey*

Gynandromorphophilia is the sexual attraction and arousal to feminine males, who may or may not have breasts, and who retain their penises. Previous research has suggested that some capacity for gynandromorphophilia may characterize all males who are gynephilic (i.e., sexually attracted and aroused to adult cisgender females). This study examined Canadian cisgender gynephilic men's (n = 65) visual attention and subjective ratings of sexual arousal when presented with nude images of cisgender males, cisgender females, and gynandromorphs with, and without, breasts. Subjective arousal to cisgender females was highest, followed by subjective arousal to gynandromorphs with breasts, gynandromorphs without breasts and cisgender males. However, subjective arousal to gynandromorphs without breasts and to cisgender males did not differ significantly. Participants exhibited unique viewing patterns for images of cisgender females, whereas viewing patterns in response to images of cisgender males and gynandromorphs with, and without breasts were largely homogenous. Participants fixated onto the chests of gynandromorphs with breasts for longer durations than those of cisgender males. If the capacity for gynandromorphophilic attraction is a cross-culturally invariant aspect of male gynephilia, then these data suggest that this capacity may only extend to gynandromorphs with breasts.

**13. The influence of pathogen threat on men's waist-to-hip ratio (WHR) and body mass index (BMI) preferences**

*Liam Cahill (Nottingham Trent University, liam.cahill@ntu.ac.uk), Filipe Cristino, Mike Marriott, & Andrew Dunn*

Previous research indicates that males rely on specific signals to evaluate female attractiveness, health, and fertility, including waist-to-hip ratio (WHR) and body-mass index (BMI). However, situational cues (e.g., resource scarcity) may shift heterosexual men's preferred female WHR and BMI. No research to date has examined whether pathogen threat cues may influence men's WHR and BMI preferences. To test this, three groups of heterosexual men (n=50) received either a pathogen threat prime (fear of diseases and illness), a control prime (generic task), or received no prime. Each group then rated 25 validated female computer body morphs, which simultaneously varied in WHR (0.6, 0.7, 0.8, 0.9, 1.0) and BMI (emaciated, underweight, average, overweight, obese) for their perceived attractiveness, health, and fertility. We found that 0.7WHR and average BMI bodies were rated significantly more attractive, healthy, and fertile than other body types, while bodies with a 1.0WHR and emaciated BMI were rated significantly less. We found no significant differences between the preferences reported by men in the pathogen relative to the control group. Despite pathogen priming not influencing men's body preferences, our sample displayed an adaptive preference for bodies with a given WHR and BMI (0.7WHR, average BMI) and an aversion to other WHRs and BMIs (1.0WHR and emaciated BMI).

**14. How the COVID-19 pandemic highlights the effects of genetic conflict during pregnancy**

*Madelyn Cardwell (Boise State University, madelyncardwell@u.boisestate.edu) & Jessica D. Ayers*

Pregnancy is often viewed as a cooperative endeavor between mother and fetus. However, biologists have documented that under the surface, pregnancy is better characterized as a time when genetic conflict between maternal and paternal genes over fetal development can run rampant. While genetic conflict is a typical aspect of pregnancy, uncontrolled genetic conflict can result in pregnancy complications for both the mother (e.g., miscarriage, stillbirth, preterm birth) and the fetus (e.g., intrauterine growth restrictions, low birth weight). But, unexpectedly, the COVID-19 pandemic has presented researchers with a case study to investigate genetic conflict during pregnancy. Specifically, medical doctors noted changes in the frequency of pregnancy complications (e.g., premature births, miscarriages, stillbirths) theorized to be influenced by genetic conflict. As the biology of these complications did not change during the pandemic, we wanted to investigate potential behavioral changes that influenced the expression of genetic conflict in pregnancy complications using archival data. Understanding these relationships can elucidate how cultural and behavioral changes influence biological processes such as the occurrence of pregnancy complications.

**15. Do novel environments trigger cortisol responses in humans? Examining a potential function of cortisol beyond its associations with the stress response.**

*Tikal Catena (UC Santa Barbara, tikalcatena@ucsb.edu) & James Roney*

Glucocorticoid responses to novel environments are consistently observed in nonhuman species, and are positively associated with increased locomotion and spatial dispersion. These responses and their effects are typically interpreted as stress responses. However, glucocorticoids' associations with

motivational processes and spatial learning suggest an alternative explanation: these transient changes may instead reflect an adaptive biobehavioral response promoting environmental exploration. In this study, we compare human subjects' cortisol responses to a novel environment (experienced through ambulatory immersive virtual reality) to their responses to control lab sessions. We hypothesize that cortisol increases will be observed when encountering the novel environment, independently of psychological stress. Additionally, we examine whether cortisol responses to a novel environment have functional effects on foraging strategy, promoting higher exploration of foraging alternatives. Following controlled exposure to the novel environment, participants complete a task within it whereby they freely forage from four virtual 'patches'. We predict participants' cortisol responses to the environment will be positively associated with exploratory foraging tendencies (as measured by upper-confidence-bound decision-making models). Data collection is ongoing, but the study will be complete by April 2023 and the full dataset and pre-registered analyses will be presented in the poster.

**16. People tit harder than they tat: Evidence for the negativity bias in cooperation games**

*Bryan K. Choy (Singapore Management University, bryan.choy.2020@smu.edu.sg), Kimin Eom, & Norman P. Li*

The current studies examine if an asymmetry exists in how people evaluate and respond to the cooperative and noncooperative actions of others. Drawing on error management theory (Haselton & Buss, 2000) and the negativity bias (Baumeister et al., 2001), we examine if the noncooperative (i.e., negative) actions of others are evaluated as more salient than cooperative (i.e., positive) actions. We expect such perceptions to be reflected in how individuals respond: not only do we expect individuals to respond in kind—responding cooperatively to a partner's cooperative behavior and responding noncooperatively to a partner's noncooperative behavior—but responses to noncooperation should be much stronger than those to cooperation. Two studies employing economic games provide initial support for our predictions.

**17. The Social Networking of Incels (Involuntary Celibates)**

*W. Costello (University of Texas at Austin, williamcostello@utexas.edu), A.G. Thomas, & J. Whitaker*

The recurring problem of finding a mate represents a fundamental adaptive problem for humans, yet there is a growing community of men who identify with their perceived inadequacy in this domain. Involuntary celibates (incels) forge their identity around their inability to form sexual/romantic relationships. A significant minority of incels engage in misogynistic online-hostility, and rare individual incels have turned violent. The UK government's Commission for Countering Extremism notes that the movement meets their definition of 'hateful extremism'. Thus, a thorough understanding of incels, and their motivators is a contemporary issue of international importance. Incels operate almost exclusively online, yet there is no research seeking to understand the intricacies of incel social-networks, and despite the term "incel ideology" pervading mainstream-media, there is a lack of empirical investigation into whether incels' view their movement as ideological. This is the gap we fill with the Swansea Incel Social Network (SISNET) project. Funded by the UK Home-Office Commission for Countering Extremism, we investigate these networks and empirically quantify the extent to which incels see their community as ideological. We also aim to

investigate other measures of interest, such as prevalence of rape myth acceptance and dark-triad traits.

**18. An Information-Theoretic Measure of Cultural Success**

*Matthew Cashman (MIT, matt@cashman.science)*

I develop a method for measuring the information from a written work that is transmitted via culture and retained in human minds, and which is therefore capable of influencing behavior. Using procedures inspired by Claude Shannon's 1951 method for estimating the entropy of written English, I estimate the entropy of samples from the target written work with a treatment group (those that have read a target work) and a control group (those who have not read the target work) In doing this, we use human minds as encoders-decoders in Shannon's communication model. KL divergence between treatment and control quantifies the information that the treatment group already knows relative to the control group; specifically, it is the number of additional bits required to express the target work given the inferior (non-reader's) language model. This method naturally controls for shared cultural inheritance and it is content-agnostic—it does not require strong commitments to what information from the target work is important. The general technique can be profitably extended to a variety of domains, including evolutionary theory, methods of teaching, and the study of music.

**19. Clustering Drives Cooperation on Reputation Networks, All Else Fixed**

*Tamas David-Barrett (University of Oxford, tamas.david-barrett@trinity.ox.ac.uk)*

Reputation-based cooperation on social networks offers a causal mechanism between graph properties and social trust. Recent papers on the 'structural micro foundations' of the society used this insight to show how demographic processes, such as falling fertility, urbanization, and migration, can alter the logic of human societies. This paper demonstrates the underlying mechanism in a way that is accessible to scientists not specializing in networks. Additionally, the paper shows that when the size and degree of the network is fixed (i.e., all graphs have the same number of agents, who all have the same number of connections), it is the clustering coefficient that drives differences in how cooperative social networks are.

**20. Three methodological innovations for the study of sex differences**

*Marco Del Giudice (University of New Mexico, marcodg@unm.edu)*

Sex differences are a central topic of evolutionary research, but the methodological toolkit of investigators is still largely limited to the analysis of differences in means and (more rarely) variances. In this poster I introduce three innovations that can usefully expand this toolkit: (1) The S-index, a simple and robust summary to quantify patterns of (univariate) sex differences at the distribution extremes. (2) Relative density clouds, a novel visualization technique to explore complex patterns of multivariate sex differences and break them down into simpler, more interpretable effects. (3) An expanded family of statistical indices of masculinity-femininity (M-F), that distinguishes between sex-typicality, sex-directionality, and sex-centrality (or sex-averageness) and helps clarify the contentious issue of multivariate "sex mosaics". I also provide links to R functions that can be used to implement these methods. By diversifying their data-analytic techniques, investigators will be able to address a wider range of research questions and build sophisticated, nuanced descriptions of psychological sex differences across traits and domains.

**21. Paternal Levels of Care and Infant Stress Reactivity during a Fear Inducing Situation**

*Bianca Deras (University of Massachusetts, Boston, Bianca.Deras001@umb.edu) & Randy Corpuz*

Literature across fields shows us that father's involvement impacts children at later stages in life across numerous domains including substance use, stress management, and general areas of health, such as diet. Many of the downstream outcomes of children from high or low paternal care households are related to regulation and early calibration of the hypothalamic pituitary adrenal (HPA) axis. In this study, the relationship between father and infant is looked at, with a focus on the relation between paternal levels of care and infant's HPA reactivity (cortisol) level. In this study, we used a large sample of fathers to investigate this relationship. Father-infant interactions were recorded and coded for a range of paternal care behaviors during an activity designed to elicit a stress response from infants. We hypothesized that paternal care would be inversely associated with cortisol reactivity. We found mixed support for these predictions. There was a small effect of fathers quality of care specific to reassurance and affection. However, other domains of paternal care showed no relationship with infant HPA response.

**22. Competition Preferences in Friends**

*Krystal Duarte (Oklahoma State University, krystal.duarte@okstate.edu), Jaimie Arona Krems, & Jennifer Byrd-Craven*

Here, we investigate the seemingly widespread assumption that people disfavor competitive women friends—and we test between predictions derived from three alternative theoretical viewpoints. A Gender Roles perspective might predict that both men and women disfavor competitiveness in female more than in male friends because women's competitiveness violates gender role norms. A Narrow Evolutionary perspective—premised on the sex-differentiated costs and benefits of intrasexual competition within same-sex groups—might predict that women will disfavor competitiveness in same-sex friends more than men will. We tested a third, nuanced view derived from an Embedded Dyad framework, which integrates functional understandings of friendship with an ecologically valid understanding of the socio-relational landscape. According to this latter view, although women might competitiveness in same-sex friends more than men, this will only hold for competitiveness directed toward oneself. This sex difference might disappear or even reverse when women and men think about how competitive they want same-sex friends to be toward other people (e.g., one's own rivals). We supported this latter view in a sample of midwestern college students responding to questions assessing ideal same- and other-sex friend preferences for competitiveness directed toward a range of targets (e.g., oneself, one's own rivals, the friend's rivals).

**23. Experience over expertise: decisions about health-related behaviors during pregnancy and postpartum**

*Michelle Escasa-Dorne (University of Colorado, Colorado Springs, mdorne@uccs.edu), Sharon Young, Glenn Franzen, Kaylani Manglona, Emily Carter, Karissa Luna, & Aaron Cheng*

Pregnant and postpartum women face a number of decisions that can impact their own health, the health of the developing fetus or young infant, or both. Peripartum women must also navigate these decisions while confronted with information from medical professionals, family, the internet, or

other sources of sometimes conflicting information. Some previous data suggest that peripartum women, moreso than during other times of their life, are more likely to practice complementary, alternative, and/or integrative medicine (CAIM) either supplementing or replacing medical advice. In our first study, we interviewed mothers who have given birth in the last 5 years about their perceptions of health care information for both reproductive and general health care. In our second study, we surveyed peripartum individuals. We asked questions about their adherence to the advice of family members, medical professionals, and non-familial individuals who had lived experiences of pregnancy/postpartum. We discuss our findings from an evolutionary lens, to better understand how differences in reproductive decision making may lead to variations in health-care related decisions between peripartum and non-peripartum women.

**24. Pro-environmentalism and Perceived Interpersonal Qualities**

*Maryanne Fisher (Saint Mary's University, mlfisher.99@gmail.com), Hidenori Komatsu, Nobuyuki Tanaka, & Mackenzie Zinck*

Despite the importance of pro-environmentalism in people's decision-making, evolutionary psychologists have been slow to incorporate it as a potential variable for mate choice. Purchasing sustainable products serves as an honest signal of long-term mate value and commitment, and women, in particular, base their perceptions of men partly on their product choices. Being perceived as sustainable leads to higher desirability ratings for both short and long-term partners, and purchasing these products is connected to greater perceived wealth and generosity. Some report that pro-environment purchasers are viewed as having higher warmth and competence, but less physically attractive, and are more preferred for long-term but not short-term relationships. Here we use the framework of prosociality and a within-subjects paradigm to assess how environmentalism influences perceptions of potential mates and rivals. Participants rated faces on characteristics related to mate preferences, complete distractor tasks, and then re-evaluated faces with pro-environmental attitudes and behaviors included. Both heterosexual men and women completed evaluations, so we could access interest in those displaying pro-environmental attitudes, as well as how expression of pro-environmentalism may impact on assessment of rivals for intrasexual mating competition. We will present our preliminary findings and outline new areas for future research.

**25. How Many?: The Big -5 and the number of children across 3 cultures**

*Hidenori Komatsu (Central Research Institute of Electric Power Industry, komatsu@criepi.denken.or.jp), T. Joel Wade, Samara Rice, Maryanne L. Fisher, Hiromi Kubota, Nobuyuki Tanaka, Rebecca Burch, Catherine Salmon, & David Widman*

Past researchers have examined how personality relates to potential mating success. Here we investigated the relationship between the Big-5 personality dimensions (Openness to experience, Conscientiousness, Extraversion, Agreeableness, Neuroticism) and reproductive success via the number of children individuals and couples have with a 3 country (Japan, US, Canada) sample (N = 15,120). Individuals who score high on Extraversion, Agreeableness, Conscientiousness, and Openness to experience were expected to report having more children while those who score high on Neuroticism were expected to report having fewer children. The results were consistent with the hypotheses for all Big-5 dimensions except Openness to experience and Conscientiousness. Additionally, married individuals, women, older individuals, and heterosexuals had more children.

Country of origin also predicted the number of children participants had with US participants and Canadian participants having more children than Japanese participants. The results are discussed in terms of prior research on personality and mating.

**26. Do I know who I really am?: How meta-perceptions of (dis)similarities in personality affect mate choice**

*Hidenori Komatsu (Central Research Institute of Electric Power Industry, komatsu@criepi.denken.or.jp), Maryanne L. Fisher, Fisher, Nobuyuki Tanaka, Aoshi Suzuki, Yasuhiro Hashimoto, Guanghao Liu, & Yu Chen*

It is unclear how people perceive (dis)similarities between a potential mate and one's own personality, and connect this information to their interest in further interaction. To address this issue, here we performed interview surveys to identify how actual versus perceived personality unconsciously function within romantic attraction. Twelve single, heterosexual participants in their 20s and 30s were matched in pairs with someone of the opposite sex who they did not know. All participants lived in the same region of Japan, and conversations were professionally moderated. They conversed for 30 minutes using an online video chatting tool. Their face, occupation, and income were hidden, and their voice transformed to be neutral in pitch. They talked about their own experiences, based on provided primes, as related to the Big Five dimensions. The results showed that (dis)similarities in their perceived personality rather than actual personality affected interest in further interactions as potential mates versus friends. We frame the results using signaling theory, and review how personality dimensions connect to mate choice. The effects of how perceived versus actual personality influences mate choice are also presented, with ideas for future work.

**27. Female intrasexual competitiveness interacts with body mass index to predict willingness to use a risky diet pill**

*Abeni Flynn (Nipissing University, arflynn859@my.nipissingu.ca), Megan MacKinnon, & Steven Arnocky*

Previous research has highlighted the putative role of intrasexual competition (IC) in driving women's body dissatisfaction, weight loss effort, and at its extreme, eating disorders. However, extant research reporting on these links is limited by its exclusion of potential confounds, including psychopathologies such as depression. Moreover, it is presently unclear whether women with higher BMI's may be more prone to the influence of IC in taking dieting risks. To address these gaps in the literature, 189 young adult women completed measures of IC, depressive symptoms, willingness to use a risky diet pill, and had their height and weight measured. Results showed that intrasexual competitiveness interacted with BMI to predict willingness to use a risky diet pill, such that women high in both IC and BMI were most likely to take the risky diet pill. Results suggest that links between dieting risks and IC may be contingent on women's BMI, and that these links hold in light of depressive symptoms.

**28. Pathogen Avoidance Motives Influence People's Helping Intentions: moderating role of physical contact during helping and kinship recognition**

*Natalia Frankowska (SWPS University, nfrankowska@swps.edu.pl), Aleksandra Szymkow, & Aleksandra Tolopilo*

The behavioral immune system (BIS) theory assumes that pathogen avoidance motives relate to greater social distance due to potential risks of pathogen transmission. Based on the BIS theory, pathogen avoidance motives would decrease pro-sociality (Ding et al., 2022). However, abandoning pro-social behavior can harm people (Fleischman et al., 2015). A well-functioning BIS should balance the costs and benefits of avoiding social contact. This means that the cost-benefit ratio of not engaging in helping behavior is likely to vary across individuals and contexts (Ackerman et al., 2018). In the ongoing study, we are running a mixed-design experiment to compare people's helping intentions toward other infected people with and without physical contact. Participants (N = 240) are taking part in a laboratory study in which we are manipulating activation of the BIS (by activating disgust) and we are measuring intentions to perform helping behavior with and without physical contact towards infected kin or non-kin. We assume that pathogen avoidance motives will negatively predict intentions to perform helping behavior with physical contact but this effect may be moderated by kinship. Participants will be less likely to help with physical contact with the sick person when the recipient is not their kin than when they are relatives. Our findings will have implications for understanding people's helping behavior during the pathogen threat toward relatives or non-relatives.

**29. Analysis of reputation structure in indirect reciprocity under noisy and private assessment**

*Yuma Fujimoto (Research Center for Integrative Evolutionary Science, SOKENDAI, The Graduate University for Advanced Studies, fujimoto_yuma@soken.ac.jp) & Hisashi Ohtsuki*

Indirect reciprocity models time changes in reputations among individuals. In indirect reciprocity, an individual chooses either to cooperate or defect to another based on its reputation, while the other individuals observe the action and update their reputations of the individual. This model is easy to handle in the public reputation case where all the individuals share the reputations of others. In reality, however, they often evaluate others independently (called the private assessment case). In such a case, a discrepancy in evaluations of the same individual can be amplified. Thus, errors in assigning reputations complicate a reputation structure among individuals, described as the two-dimensional information of who assigns a reputation to whom (called image matrix). This study presents a novel method to analyze such a complicated reputation structure. Under the public reputation, Simple Standing (SS) and Stern Judging (SJ) are successful rules for giving good reputations among themselves. However, SJ fails to give good reputations within themselves under the private assessment, while SS still succeeds. We study the reputation structures for other various rules, providing a theoretical basis for considering of interpersonal relationships in human society.

**30. Parental investment theory, sibling conflicts, and age difference between siblings**

*Annika Gunst (Åbo Akademi University, agunst@abo.fi), Ida Pedersen, & Jan Antfolk*

Conflicts are frequent in sibling relationships during childhood and adolescence. However, little is known about the dynamics behind sibling conflicts. Based on the evolutionary theory of parental-offspring conflict, we hypothesized that more conflicts would arise between siblings close (vs. further apart) in age as they compete for the same type of parental investment. We also studied the alternative hypotheses that more conflicts would arise between siblings close in age as they are more similar and closer to each other. We analyzed retrospective survey data from 379 parents in Finland who had at least two children and whose oldest child was a minor. We performed multiple regressions with sibling conflict as the dependent variable, age difference as the independent

variable, and sibling similarity and sibling closeness as control variables. Only age difference predicted the number of conflicts; siblings closer in age had more conflicts, supporting our hypothesis. Similarity and closeness were not significantly associated with the number of conflicts. However, the model explained only a small amount of the variance in sibling conflicts (R^2 = .05). Future studies could measure the type of investment in more detail to elucidate the potential association between sibling conflict and parental investment theory.

**31. Cycle phase and hormonal correlates of within-women shifts in voice attractiveness**

*Goirik Gupta (University of California, Santa Barbara, goirikgupta@ucsb.edu), Tikal Catena, Mei Mei, & James Roney*

Do women's voices sound more attractive on days of the menstrual cycle when conception is possible? Some prior research has supported this pattern. To provide further evidence on this question, we collected voice samples from 39 women with confirmed ovulation on four weekly testing occasions per woman. Participants recorded a neutral phrase (the rainbow passage) and a phrase with a social context (invitation to a cup of coffee). Timing of ovulation was confirmed using urinary luteinizing hormone (LH) tests and used to estimate which voice samples were produced during the fertile window (defined as days -5 to 0 relative to the day of ovulation). Approximately 100 raters rated each voice sample for attractiveness. Contrary to some prior findings, voice attractiveness was not rated significantly higher for fertile window voice samples than for samples collected in other cycle regions. Ongoing data analyses will assess correlations between speakers' salivary progesterone concentrations and ratings of their voice attractiveness in order to test replication of prior findings suggesting a negative within-subject correlation between these variables. Our preliminary findings raise doubts regarding whether voice attractiveness is a reliable perceptual cue of women's ovulatory timing.

**32. Women's use of social allies as bodyguards are perpetrator specific**

*Rebecka Hahnel-Peeters (University of Texas at Austin, rhahnel@utexas.edu) & David M. Buss*

One adaptive problem for women is the avoidance of sexual violence. One hypothesized strategy to avoid sexual violence includes women's use of bodyguards. The bodyguard hypothesis posits that women benefit from a reduced risk of sexual violence through forming romantic pair-bonds. The present research broadens the previously narrow conceptualization of bodyguards and includes a wide array of social allies (e.g., kin, friends, and romantic partners). We test our hypothesis that women's use of bodyguards is perpetrator-specific across two studies. In Study 1, 262 women (Mage = 21.98) nominated protective behaviors they would use against five threats of sexual violence (i.e., stranger, acquaintance, date-rape, partner, and unspecified perpetrator). We predicted—and found—that women would spontaneously nominate different bodyguards in response to different perpetrators. Between 13% to 25% of the 4,428 nominations included women's use of social allies as bodyguards. Bodyguard-type statistically varied by perpetrator-type, $\chi 2(16) = 135.69$, $p < .001$. In Study 2, women rated the likelihood of using specific bodyguards as a function of different perpetrators and environmental cues to the likelihood of sexual victimization. Study 2's data will be analyzed before the HBES meeting. These data are the first to speak to the context-specificity of women's bodyguard psychology.

**33. Music to my ovaries? Women detect more errors in musical stimuli when estradiol levels are high**

*Summer Mengelkoch, Savannah Hastings (Texas Christian University, s.a.hastings@tcu.edu), & Sarah E. Hill*

Research indicates that women prioritize cues to genetic quality at times in the cycle when conception is possible. These shifts have been found to vary as a function of changes in women's levels of estradiol and are reasoned to help women discriminate between high- and low- quality partners. Here, we build on such work, examining the impact of changing cycle phase and levels of estradiol on women's attunement to a novel courtship-relevant cue that has heretofore not been examined in humans: musical quality. Guided by convergent cross-species evidence indicating heightened female attunement to rhythmic displays when females are sexually receptive, we predicted that human females would be more attuned to music and better able to detect musical errors at times in the cycle when conception is possible. Moreover, we predicted that changes in women's attunement to musical quality would vary as a function of changing levels of estradiol. We tested these predictions by measuring the number of errors that naturally-cycling women noticed in clips of music at each the luteal and peri-ovulatory phases of the menstrual cycle. Results revealed that, for naturally cycling women, changes in estradiol predicted changes in the ability to detect errors in musical performance.

**34. The (Simp)le Truth about Excessive and Obsessive Romantic Behaviors in Men**

*Daniel Ho (Singapore Management University, daniel.ho.2021@msps.smu.edu.sg) & Kenneth Tan*

In recent years, there has been a growing trend in mainstream media of certain individuals being termed as simps, generally recognized as people who engage in costly or extravagant romantic behaviors toward a romantic interest, but are often met with no reciprocation. In short, simping behaviors appear to be an evolutionarily maladaptive mating strategy where individuals engage in forms of excessive and obsessive behaviors when pursuing a romantic interest. The current research aims to explore this novel phenomenon, identifying typical traits that encompass simps and simping behavior in the modern world. Participants were asked to rate their agreement on a list of traits and characteristics to the extent that each trait accurately described simps or simping behaviors. Factor analyses were carried out, and it was found that although simps were perceived to possess warmth and communal traits, they were also regarded as being desperate, unattractive, and incompetent. This is the first study that examines the construct of simps in the context of mating strategies, and offers various questions ripe for future research in exploring the motivations and individual differences behind simping behaviors.

**35. Improving Our Measure of Life History Strategy: Introducing the New Paltz Life History Measure**

*Emma Jerabek (SUNY New Paltz, jerabeke1@newpaltz.edu), Glenn Geher, Kyle Powell, Kaitlyn Longo, & Sergio Lopez*

Building off the work of Copping (2014), the current study focuses on the development of a novel measure of Life History Strategy (LHS). LHS can be described by how one's developmental environment shapes the way they proceed through their current environment, with the main focus

being reproductive effort versus somatic effort. The most predominantly used scales for measuring LHS have the Mini-K (Figuredo et al, 2006) and HKSS (Giosan, 2006). Various criticisms of these scales have been launched (c.f., Copping, 2014), including claims that the current scales are too focused on socioeconomic status and that they do not take into consideration sex differences sufficiently. In this in-progress study, we are developing a new scale to improve the measurement validity of LHS. Using relevant demographic variables as well as a novel budget-allocation measure, the current scale seeks to improve our ability to measure LHS. Standard psychometric processes, including various forms of validation, will be implemented and described.

**36. The Effect of Population Density on Marital and Reproductive Attitudes and Decisions: An Experimental Investigation**

*Amy J. Lim (Murdoch University, amy.lim@murdoch.edu.au), Norman P. Li, Zoi Manesi, Steven L. Neuberg, Mark van Vugt, & Andrea L. Meltzer*

Existing research evidence a robust relationship between population density and fertility - increased population densities were associated with declined fertility rates. Yet, these prior investigations were largely correlational. Our study examined the causal influence of population density on marital and reproductive attitudes and decisions. We also explored the gender difference in the effects of population density. Given that status and resources are important for men to attract mates, the perception of dense populations may drive men to be more concerned with procuring status and resources over reproduction. In two experimental studies (N = 630), we found that the effects of population density on marital and reproductive attitudes were more evident in men than women. Specifically, when primed with the context of living in densely populated conditions, men - not women - reported lower intentions to get married, more unfavorable attitudes towards having children, and a slower reproductive strategy. These effects were not found for marital and reproductive decisions, namely marital timing, reproductive timing, and the number of children desired. Perceptions of crowdedness also did not mediate the effect of population density on marital and reproductive attitudes. We discuss our pattern of findings and the implications of this casual investigation on recent population density studies.

**37. Women's Romantic Jealousy Predicts Risky Appearance Enhancement Effort**

*Megan Mackinnon (Nipissing University, memackinnon748@my.nipissingu.ca), Sadie Clarke, Grant McPherson, Emily Kapitanchuk, & Steven Arnocky*

Appearance enhancement effort has recently been considered from an evolutionary perspective as an adaptive and sexually dimorphic strategy for effective female intrasexual and intersexual competition. Most writing and research on the topic to date has focused on appearance enhancement as a means of mate attraction, with relatively less research examining its role in mate retention. The present study considered whether romantic jealousy, as a negative emotion experienced in response to perceived threat to a desired relationship, predicts costly and/or risky appearance enhancement independent of the closely related emotion of envy. In a sample of 189 undergraduate women, results showed that romantic jealousy and dispositional envy were positively correlated with one another. Results further demonstrated that romantic jealousy predicted women's positive attitude toward cosmetic surgery, willingness to use a one-week free tanning membership, willingness to use a risky diet pill, and intent on spending a greater proportion of their

income on appearance enhancement. Results held independent of participants' dispositional envy, suggesting that romantic jealousy is a unique predictor of women's efforts at enhancing their physical appearance, which could extend into costly and physically risky efforts.

**38. Psychological network analysis of the Life History Rating Form**

*Joseph H. Manson (UCLA, jmanson@anthro.ucla.edu)*

Uncertainty persists regarding how best to measure the psychological aspects of human life history strategy, theorized as varying on a Fast-Slow continuum. The Life History Rating Form (LHRF; Dunkel et al. 2016) has shown impressive reliability and validity. Here, I report the results of psychological network analysis of the LHRF's 20 items (nodes), based on data from 929 U.S. MTurk participants. In contrast to latent variable modeling, psychological network analysis examines causal relationships (here, partial correlation coefficients as network edges) among narrow behavioral traits (individual questionnaire items). The LHRF's mean node predictability (0.42) indicates that a considerable amount of the variation in the nodes can be explained by other nodes in the network. I calculated, for each node, the three centrality indices Strength (direct connections to other nodes), Closeness (indirect connections to other nodes) and Betweenness (importance of the node in connecting other nodes to each other). The most central nodes in the network were the "Slow" items Productive, Dependable, Interpersonal Warmth, and Behaves Ethically, and the "Fast" item Hostility. The most peripheral nodes were the "Slow" items Conservative Values and Makes Moral Judgments, and the "Fast" items Self-Indulgent, Behaves Quickly, and Eroticizes Situations. Implications of these findings are discussed.

**39. Adaptationist Psychology vs. Critical Theory in the Academy: Problems and Solutions**

*Michael Mills (Loyola Marymount University, memills@gmail.com)*

Evolutionary psychology (EP) has been tangling with adversaries from both inside and outside of the academy since the discipline began. Political critics have incorrectly labeled the field as conservative or right-wing (research has shown that this is not the case), creationist religious critics have challenged evolutionary theory itself, and others have denounced EP as promoting Social Darwinism, etc. Critics within the academy have asserted that EP is essentialist, deterministic, ignores socialization and culture, is "impossible," and is sexist, racist and in many ways is politically unpalatable. Its primary theoretical adversary has been "blank slate" behaviorism and social constructionism. As if things were not already bad enough, a new challenger has recently appeared: critical theory. Critical theory, derivative of postmodernism, deconstructionism, and neo-Marxism, suggests that objective knowledge is impossible and is actually an attempt by powerful groups in society to oppress other groups. The recent rapid and powerful rise of critical theory in the academy is reviewed. Summary tables are presented that compare and contrast adaptationism with both social constructionism and critical theory. Several suggestions are presented regarding how to deal with these threats to the discipline.

**40. Religion and Sexual Morality Across 14 Nations**

*Amber Montez (University of Texas at Austin, amontez@utexas.edu), Rebecka Hahnel-Peeters, Courtney Crosby, & David Buss*

Sexual behaviors are among the most moralized behaviors of our species. Religions around the world condemn specific sexual behaviors while promoting others. Evolutionary psychology explains religion's preoccupation with moralization of sexual behaviors through two non-mutually exclusive routes: (1) an evolved psychological mechanism directly linked to fitness benefits and (2) a byproduct of evolved psychological mechanisms linked to solving other important adaptive problems (e.g., human cooperation). Regardless of the ultimate explanation of religion, one hypothesized function of religion includes creating environments where certain sexual strategies are more easily maintained than alternatives. Previous research demonstrates that religiosity is strongly related to upholding long-term sexual strategies with high levels of reproduction. The current cross-national study examined the extent to which religious variation relates to negative moralization of behaviors associated with more short-term, promiscuous sexual strategies and positive moralization of behaviors associated with more long-term, committed sexual strategies. Data from 14 countries—from Chile to Sweden—report similarities and differences in sexual morality.

**41. The White Queen: Modeling the Pathogen-Host Dynamics of Sickness Behaviors and Host Manipulation**

*Jacqueline Nolly (University of Colorado, Colorado Springs, jnolly@uccs.edu) & Caleb Moyer*

The Red Queen hypothesis describes the "evolutionary arms race" between pathogens and host, whereby evolutionary adaptations of the pathogen rival those of the host. In this way, the co-evolution between pathogen and host operates as a competitive driver for both sides. However, it is not always clear which side of the "arms race" an adaptation serves. Certain behaviors can be described both as host sickness behavior and as parasite manipulation of the host to increase transmission. For instance, the act of coughing can serve to expel pathogens from the host's airways but can also serve to disperse a pathogen into the air. Additionally, disease resistance strategies incur different costs to the host. This poster reviews the current literature to outline the social, immune, and reproductive trade-offs that determine whether a behavior is an evolved host mechanism or a vehicle of pathogen transmission. Further, this poster proposes a White Queen model, which describes how a chosen disease resistance strategy (avoidance versus acquired immunity) can impose specific evolutionary constraints and portrays host-pathogen dynamics as more of a chess game than an arms race.

**42. Women's Competition for Mates, but not Friends, Varies Across the Menstrual Cycle**

*Hannah Keith, Jade Stobbart, Tayah Vahrmeyer, & Jaime Palmer-Hague (Trinity Western University, jaime.palmerhague@twu.ca)*

Women compete intrasexually for both mates and social status, but little is known about the behavioral and hormonal mechanisms underlying their competition across these contexts. We hypothesized that women would respond more competitively to a high-threat (i.e., more attractive) compared to a low-threat (i.e., less attractive) mating rival leading up to ovulation (i.e., late follicular phase; high estradiol). In contrast, we hypothesized that women would respond more competitively toward a high-threat (i.e., more indirectly aggressive) compared to a low-threat (i.e., less indirectly aggressive) social rival following ovulation and possible conception (i.e., mid-luteal phase, high progesterone levels). In an online study, women (N=362) rated faces of hypothetical high- and low-threat mating and social competitors. As expected, women in the late-follicular phase reported greater likelihood of gossiping about a high- versus low-threat mating competitor than those in the

early follicular and mid-luteal phases. Cycle phase did not affect competitive responses to social rivals. Further, estimated estradiol concentration positively predicted stronger competitive responses to high-threat mating rivals across the cycle. No hormone effects were found for social rivals. Together, these results suggest that unlike mating competition, social competition may be less dependent on fertility and more on individual, situational, and economic factors.

**43. Leveraging Big Data for Understanding Menstrual Stigma**

*Sisi Peng (UCLA, s.peng@ucla.edu), Claire Reid, & Martie Haselton*

Menstruation is a fundamental biological process impacting millions of people globally. So why is it stigmatized? One potential explanation is that menstrual blood elicits disgust, consistent with the existence of a behavioral immune system. Media stigmatize menstruation – e.g., the use of blue instead of red liquids, cloaking the reality of how periods actually happen. In this study, we investigated the communication of menstrual health information on Twitter and Reddit by examining euphemisms (e.g., "Aunt Flo," "time of month," "shark week") in comparison to direct expressions (e.g., "period," "menstruation," "menstrual cycle"), and then assessing their emotional tone. We developed a comprehensive set of phrases and hashtags that mention menstruation, then applied these search terms to collect a robust dataset of recent publicly available Twitter and Reddit posts (English and U.S. only). We have planned analyses using R and LIWC (Linguistic Inquiry and Word Count). We ask, do people tend to use more indirect than direct descriptions of menstruation, and is the associated sentiment more negative and disgust-related than positive and joyful? This study will reveal the prevailing narrative around menstruation and pinpoint sources of variation in menstrual attitudes that can then be used in intervention research.

**44. Parental Burden Predicts Jealousy in Married Individuals**

*Carin Perilloux (Southwestern University, perilloc@southwestern.edu) & Sarah J. Woods*

The evolutionarily novel situation of close cross-sex friendships may present new challenges to our evolved jealousy mechanisms, especially for parents. The demands of parenting on the limited resources of mothers and fathers could result in more reactive jealousy mechanisms. The current study examined the relationship between parental burden and both jealousy and attitudes towards cross-sex friendships in married individuals (N = 394). Participants read a vignette in which they imagined their spouse making a new friend in which the gender and attractiveness of the new friend were randomly assigned. They also responded to questions about their offspring: the number of children, their ages, and custody status. We used a weighted sum to convert these values to approximate a parental burden score. As predicted, the parental burden score was a significant predictor of attitudes about cross-sex friendship as well as jealousy in response to the vignette. In addition to the anticipated sex difference in jealousy, with women more jealous than men overall, parental burden was actually a better predictor than participant sex for both dependent measures. This study highlights the need for the development of a reliable and valid measure of parental burden, as an evolutionarily relevant internal regulatory variable.

**45. Third-party expectations of bargaining behaviors: How do lower formidability individuals bargain for better treatment?**

*Nina N. Rodriguez (Oklahoma State University, ninrodr@okstate.edu), Jaimie A. Krems, & Daniel Sznycer*

Research suggests that individuals who are better equipped with certain physical characteristics (e.g., being strong) can more effectively inflict costs or withhold benefits during conflicts of interests. But how might less physically formidable individuals bargain for better treatment? Here, we begin to address this question by examining perceivers' intuitions about a range of under-explored bargaining behaviors. We tested whether people expect different targets, who presumably vary in their ability to inflict costs or withhold benefits, to utilize different bargaining behaviors when in conflict. Specifically, we examined participants' expectations about the likelihood and effectiveness of nine bargaining behaviors--hitting the other person, threatening to physically hurt the other person, giving the silent treatment, withholding affection, threatening to stop talking to the other person, crying, whining, throwing a temper tantrum, and acting out--when employed by targets varying in sex and age. As predicted, individuals presumably higher in formidability were deemed more likely to use physical aggression, whereas targets presumably lower in formidability were deemed more likely to use withholding behaviors. Results suggest that, absent other crucial information, people produce reliable inferences about how different demographic categories attempt to bargain for better treatment, and that these inferences track the probable formidability of said categories.

**46. Kissing as a signal and assessment mechanism of commitment**

*Brianna Ruff (California State University, Fullerton, bruff@fullerton.edu) & Aaron Goetz**

One set of adaptive problems that our ancestors surely faced when forming and maintaining a pair-bond was assessing another's commitment to the relationship and honestly signaling one's commitment to the relationship. We should expect men and women to be equipped with a psychology that monitors the status of the relationship and deploys tactics to assess and signal commitment. Research suggests that kissing might be one such tactic. I hypothesize that because kissing is risky (possibly transmitting pathogens, viruses, and bacteria), it might function as a costly signal that one is interested in or committed to the relationship. In the current study, I assessed the relationship between kissing attitudes and behaviors to feelings of commitment to the relationship for both the individual and perceptions of their partner. We also examined if kissing more commonly occurs at times when commitment tends to be less certain, and if cues of commitment uncertainty were related to increases in kissing attitudes and behaviors. My hypothesis was supported that there is a relationship between kissing attitudes and behavior with feelings of commitment as well as with cues of commitment uncertainty.

**47. Wrong face wrong time: Trait judgments following "inappropriate" disgust expression**

*Kaelyn Sabree (University of Michigan, ksabree@umich.edu) & Joshua Ackerman*

People rely on and use others' emotional expressions to form judgments and make inferences about the people they're interacting with (e.g., people with smiling faces are typically judged to be more warm & affiliative). But what social information do we glean, or judgments do we make of others when their emotional expressions are mismatched to the environment? Previous research simply suggests that we have negative reactions to cases of expression-environment mismatch. From an affordance management perspective, however, we might expect that the type of mismatched expression (e.g., a disgusted expression toward a neutral object, a "false-positive" error, vs. a neutral expression toward a disgusting object, a "false-negative" error) should produce different judgments

based on the threats or opportunities that the affective deviant may pose. In two studies (N = 174, N= 230), we found and replicated that people do negatively evaluate affective deviants on many desirable traits, but also that their negative evaluations differ depending on the type of mismatch. Targets with disgust expressions toward neutral objects were evaluated lower on traits like attractiveness, whereas targets with neutral expressions toward disgusting objects were evaluated lower on traits like health.

**48. Test of kin selection hypothesis among Iranian male androphiles and female gynephiles**

*Mostafa Sadrbazzaz (University of Lethbridge, sadrbazzazm@uleth.ca) & Paul L. Vasey*

Exclusive same-sex attraction or androphilia (i.e., sexual attraction to adult males) in males and gynephilia (i.e., sexual attraction to adult females) in females is puzzling from an evolutionary perspective. Both male androphilia and female gynephilia have genetic components and yet same-sex sexual orientation negatively influence direct reproduction. Based on the kin selection hypothesis, genes for same-sex attraction could be maintained in a population if low direct reproduction is offset by increasing indirect fitness. Individuals could increase their indirect fitness by channeling altruistic behavior towards kin, which, in turn, would facilitate survival and increased reproductive success by those kin with whom they share genes. To test this hypothesis, we compared altruistic tendencies toward kin and non-kin children in Iranian cisgender male androphiles (n = 70), transgender female gynephiles (n = 104), gynephilic men (n = 167) and androphilic women (n = 164). Within group comparisons showed that all groups scored higher for altruistic tendencies toward kin versus non-kin children. However, contrary to predictions derived from the kin selection hypothesis, participant groups did not differ with respect to their altruistic tendencies toward kin ($F(3, 501) = 1.38$, $p = 0.24$) and non-kin children ($F(3, 501) = 0.52$, $p = 0.66$).

**49. Perceived Trustworthiness of Online Dating Biographies**

*Katherine Sheetz (Oakland University, ksheetz@oakland.edu) & L.L.M. Welling*

Online dating biographies (i.e., bios) vary in trustworthiness due to viewers' perception of bio accuracy and the dimensions of selective self-presenting (SSP). SSP refers to the amount of positive presenting information ranging from modesty to arrogance. Bios containing modest language and warranting language (WL), which is verifiable information that viewers can confirm (e.g., via social media, triangulation techniques) may increase perceived trustworthiness of the profile owner. The purpose of the present study is to replicate and expand on prior work by assessing how high SSP (arrogance) without WL versus low SSP (modesty) with WL in online dating bios affect the perceived trustworthiness of profile owners. Cisgender women attracted to men (N= 66) provided demographic information and rated 40 different bios (i.e., 20 modest/WL, 20 arrogant/No WL) for trustworthiness via Qualtrics. A paired samples t-test revealed a significant difference in trustworthiness between modest/verifiable bios (M= 7.63, SD= 1.21) and arrogant/unverifiable bios ($t(65)= 13.90$, $p< .001$). As predicted and in line with other research, profile bios signaling modesty via SSP and using WL are perceived as more trustworthy than bios signaling arrogance and lacking WL. This research has implications for future work on perceptions of trustworthiness in online dating profiles.

**50. Sex differences in third-party perceptions of established friends: Examining shared interests, venting, and teasing as predictors of perceived closeness**

*Tori Short (Oklahoma State University, tori.short@okstate.edu) & Jennifer Byrd-Craven*

Men and women's friendship preferences have shown to vary based on these relationships' functions; however, we do not yet understand how individuals infer closeness between same-sex others according to these preferences. Adapted from Liberman and Shaw (2019), this study aims to assess which cues men and women prioritize when trying to infer friendship closeness between a central target and two of their friends. Specifically, we examined which of the following conditions participants would prioritize when compared: (1) shared interests, (2) venting, and (3) teasing. For example, when comparing shared interests with venting, the central target will be described as having common interests with 'friend A', but when the target has a conflict, the target chooses to call 'friend B' to vent about it. We predict that men will infer that the friends who tease each other are closer when these conditions are compared to friends who vent to one another or share interests. Meanwhile, we predict that women will infer that the two friends who vent to one another are closer than friends who tease one another or share interests.

**51. Sex Differences in Competition: Perceived Reliability of Gossip May Be Higher When Evaluating Male Targets Than Female Targets**

*Jade Stobbart (Trinity Western University, jadestobbart888@gmail.com) & Jaime Palmer-Hague*

Both men and women engage in indirect aggression, but little is known about the effectiveness of gossip as a competitive strategy for men. Given that men are more likely than women to engage in direct, physical conflict, we hypothesized that men would judge other men more harshly by their performance than information conveyed through a third-party; we predicted the opposite pattern for women. We compared men and women's (N=1446) willingness to share social resources with male and female targets (i.e., befriending them, introducing them to their circle of friends, sharing possessions with them, hiring them) following receipt of information about them via gossip from a third-party, direct observation of their behaviour, or neutral facts. Contrary to our hypothesis, we found that participants were less likely to share resources with male targets in both the gossip and direct observation conditions compared to neutral. In contrast we found that participants were least likely to share resources with a female target in the direct observation condition, followed by the gossip and neutral conditions. These results suggest that when evaluating a potential female ally, gossip may not be considered as reliable as when evaluating a male.

**52. What explains sexual stereotype overlap between sexual orientation and gender identity groups?**

*Lucas M. Strickland (University of California, Los Angeles, lmstrickland@ucla.edu) & Martie G. Haselton*

From 2019 to 2022, the percentage of LGBT youth identifying as transgender or nonbinary rose from 33% to 48%. Nonetheless, negative sentiment about transgender individuals remains high. According to UCLA's Williams Institute, transgender people are over four times more likely to be victims of violent crimes than cisgender people. Why are transgender people targets of discrimination? One explanation could be that the same negative stereotypes that characterize non-hetersexual orientation are applied to transgender individuals, even though these are clearly distinct identities, one involving partner preference and other involving one's identity as male or female. We

documented a stereotype that gay people are seen to be more promiscuous than straight people in prior work. Thus, we hypothesized that the same interaction would exist to predict attitudes towards transgender rights. In study 1 we found that lay people indeed believe that transgender people are promiscuous at both the explicit and implicit levels. In study 2, we found that primary sex characteristics tend to be the drivers of sexual orientation judgements. These results are seminal in understanding the reason behind discrimination against transgender individuals.

**53. Is the behavioral immune system human universal?: An international comparison between Malaysia and the Philippines**

*Ryoko Takikawa (Waseda University, takikawar@toki.waseda.jp), Yasuyuki Fukukawa, M. Guadalupe Salanga, & Tan Soon-Aun*

The behavioral immune system (BIS) is a mindset that has evolved in human beings for successful survival and reproduction in an ancient environment. Previous studies, however, have suggested that the BIS does not always work adaptively in the modern context. The purpose of this study was to examine the relationship of BIS with ageism between Malaysia and the Philippines, both of which are in the tropical region of higher risk of suffering from infectious diseases. A total of 484 university students in the two countries responded to a questionnaire regarding germ aversion (aversive affective responses to situations that connote a high likelihood of pathogen transmission) and three types of ageism, i.e., antilocution (malicious talk about older people), avoidance (avoiding contact with older people), and discrimination (excluding older people from certain rights and privileges). Analysis indicated that germ aversion was positively correlated with all types of ageism in Filipino sample while it was positively correlated only with discrimination in Malaysian sample. The results remained significant even after controlling for subjects' age, sex, and health status. Implications of the findings are discussed, with particular focus on cultural differences between the two countries.

**54. The role of humour production and perception in the daily life of couples: An Interest Indicator Perspective**

*Kenneth Tan (Singapore Management University, kennethtanyy@smu.edu.sg), Norman P. Li, & Bryan K.C. Choy*

In an established relationship, do funny couples have more satisfying relationships, or are couples who are satisfied with their relationship more able to see the funny side of things? Much research has examined the evolutionary function of humour in relationship initiation but not in relationship maintenance. Using a dyadic daily diary study comprising of college students from Singapore, results showed that relationship quality was positively associated with same-day humour production and perception. Importantly and consistent with an interest indicator perspective in which humour exchanges communicate relationship interest, relationship quality was also positively associated with next-day humour production and perception, and also across both sexes. Results also indicated some support for a sexual selection perspective in which humour exchanges only predicted same- and next-day satisfaction but not commitment. Overall, our findings suggest how humour can ultimately function as a strategy to monitor and maintain established relationships.

**55. Flirty and Afraid?: Pathogen Disgust and the 5 flirting styles**

*T. Joel Wade (Bucknell University, jwade@bucknell.edu) & Maryanne L. Fisher*

Here we explore whether pathogen disgust differentially affects men's and women's endorsement of using the 5 flirting styles (traditional, sincere, playful, polite, traditional). Using a 2 country (US, Canada) sample (N = 275) and the Perceived Vulnerably to Disease Questionnaire (PVD) and multiple regression, we investigated whether pathogen disgust scores predict endorsement of using particular flirting styles. Our hypothesis was that PVD scores would differentially affect men's and women's endorsement of the polite flirting style measure, such that men who score high on pathogen disgust would most strongly endorse using a polite flirting style and more so than women. The germ aversion subscale of the PVD differentially affected scores on the polite flirting style scale, but there were unexpected findings. For both countries, men who scored low on the germ aversion subscale more strongly endorsed using a polite flirting style while women who scored high on the germ aversion subscale more strongly endorsed using the polite flirting style. These results are discussed in terms of prior research on pathogens, disgust, and mating behavior.

**56. Seeing the Other Side: the Role of Restorative Justice in the Evolution of Cooperation**

*Ona Wang (Arizona State University, owang3@asu.edu) & Athena Aktipis*

Maintaining cooperation within a community can be a challenge because of the problem of cheating and the possibility of exploitation. Human societies have used many approaches for responding to violations of social norms, injuries, and other harms. Much work in the evolutionary biology of cooperation has focused on punitive mechanisms. However, many small-scale societies engage restorative processes rather than punitive ones when individuals commit harm. As hierarchical power systems developed alongside social complexity, leaders implemented punishment to maintain control. Researchers and policymakers are discovering that restorative processes can effectively address violations while supporting cooperation in large-scale societies. Restorative justice has demonstrated efficacy to increase public safety, remedy racial disparities, and reduce the financial and human costs of mass incarceration. Education scholars uphold restorative justice as social-emotional learning, while criminologists champion restorative processes to reduce recidivism. Restorative justice, which calls for seeing the other side rather than taking sides, has the potential to both manage problems of cheating and support cooperation in communities. It is therefore critical that evolutionary scholars investigate restorative practices to understand the evolution and maintenance of cooperation in human groups. Restorative justice expands the imagination for solutions to problems that keep members in community.

**57. Competitive Threats in Mating and the Workplace: Intra and Inter Sexual Competition**

*Rachel Christine Zambrano (University of Arizona, rzambrano@arizona.edu) & Aurelio Jose Figueredo*

Much research has been conducted on the psychological mechanisms that underlie competitive behavior, yet no research has investigated what traits contribute to another individual, or rival, being considered a competitive threat. The goal of this research is to identify the factors that contribute to an individual being considered a competitive threat in a mating context and a working context and to see how biological, ecological, and personality variables influence an individual's perception of these factors. We found that being considered a Dating Threat was the number one predictor of an individual being considered a Working Threat, suggesting an overlap in the traits that constitute an individual being evaluated as a competitive threat in the dating and working marketplaces. A potential outcome of competition in the workplace, Employee Turnover, was not significantly

predicted by the presence of a Dating Threat or Working Threat but was significantly predicted by Indirect Aggression and Direct Aggression. Further research and replication are needed to fully flush out the traits that contribute to an individual being considered a competitive threat.

**58. Detecting Female Infidelity: Men's Perceptions and Women's Self-Reports**

*Vincent Stabile (Oakland University, vstabile@oakland.edu), Gavin Vance, Virgil Zeigler-Hill, & Todd Shackelford*

Men historically faced the adaptive challenge of paternity uncertainty. In line with error management theory, selection should have favored male biases that limited errors most costly to reproductive success. A male bias to infer female partner fidelity would have reduced the likelihood of failing to invest in genetic offspring. Conversely, a male bias to infer female partner infidelity would have reduced the likelihood of unwittingly investing in a rival's offspring. Assuming that the latter error is more costly, we examined whether men are more likely to infer partner infidelity than partner fidelity. We also examined men's sensitivity in discriminating between fidelity and infidelity by their female partners. In 103 dyadic couples, women reported whether they engaged in infidelity, and their male partners reported whether they believed infidelity had occurred. Signal detection analyses revealed a male bias to infer partner fidelity and a male ability to discriminate between partner fidelity and infidelity. However, this discriminability was attributable to high detection of fidelity (98%) rather than infidelity (15%). These findings suggest that women efficiently conceal cues of their infidelity and, at least in the absence of such cues, men tend to assume that their female partners are sexually faithful.

**59. Individual variation in anti-immigration tendencies**

*Catharina Walldén (Åbo Akademi University, cwallden@abo.fi), Annika Gunst, Minja Westerlund, Pekka Santtila, & Jan Antfolk*

We tested the hypothesis that anti-immigration attitudes partly result from intrasexual competition, especially among heterosexual men, as men compete more for mate access than women. That is, the more an immigrant group is perceived as increasing intrasexual competition, the more anti-immigration attitudes natives will display. We predicted that native men display more anti-immigration attitudes than women and that immigrant-specific variables (ethnicity-specific prejudice of sexual behavior) predict anti-immigration attitudes in native men. We used self-reports on mate access, mate value, intrasexual competition, and mate retention from 485 Finnish adults. We presented participants vignettes describing a group of reproductive-age immigrants of the participant's own gender entering the participant's home county. Participants then reported their anti-immigration attitudes toward the immigrant group. We used available data on participant's home county's sex-ratio as proxy measure for mate access. As expected, men displayed more anti-immigration attitudes than women, especially toward immigrants from ethnic origins considered sexually assertive. Men in male-biased home counties reporting high intrasexual competition reported more anti-immigration attitudes than those in unbiased or female-biased home counties. Interestingly, intrasexual competition and mate retention did not predict anti-immigration attitudes among men, but among women. We discuss findings further.

**60. Would You Swipe Right?: A Study on Catfishing and the Social and Psychological Factors that Lead to Forgiveness**

*Ethan Eisenberg (SUNY New Paltz, eisenbee1@newpaltz.edu), Glenn Geher, Kaitlyn Longo, Emma Jerabek, Jacqueline Di Santo, William Costello, Julia Lombard, & Darcy Montana*

Deception has been a major issue in the human experience for eons. Modern technologies, such as dating apps, provide highly novel ways for people to engage in deceptive actions. One of the deceptive, antisocial behaviors associated with dating apps is Catfishing: deceiving others about one's height, age, income, education level, etc., to "reel in" dates. The current study investigated factors associated with how people respond to having been catfished in a dating context. Specific variables assessed included (a) the severity of the deception, (b) the content of the deception (lying about height versus age), and (c) the perceived genuineness associated with the catfisher's apology. Findings support multiple aspects of our hypotheses. It was found that, overall, men are more likely than women to forgive the catfisher, as well as overall more likely to go out with the catfisher again. Analyses also found that people who score high on the Light Triad are also more likely to forgive, and go out again with the catfisher. Although all parts of our hypotheses were not supported, analyses produced many interesting results to be discussed.

**61. The Evolutionary Psychology of Voting Behavior: Personality Traits that Predict Candidate Selection**

*Kaitlyn Longo (SUNY New Paltz, longok1@newpaltz.edu), Julia Lombard, Glenn Geher, & Kyle Powell*

Examining the psychological and social processes of how and why political leaders are elected into office may help to enhance our understanding of human behavior and to better predict future political decisions. Our study (N=300) aims to identify the traits people prefer in their leaders. Specifically, this study seeks to identify which voter traits predict these preferences in terms of leaders who possess either dark or light triad traits. In order to test these questions, we created two vignettes of political candidates, each exhibiting a set of dark or light triad characteristic traits and behaviors. Our findings indicate that participants who prefer the "light candidate" scored high on light triad traits, low on dark triad traits, and low on social and political conservatism. Findings also showed that participants who preferred the "dark candidate" scored low on the light triad traits, high on the dark triad traits, and high on social and political conservatism. Results of the life history measure indicate that participants who had a stronger preference for either candidate had a slower life history strategy. The majority of our findings are consistent with our original hypotheses that people high in Dark Triad traits AND political conservatives AND masculine gender identities AND Fast life history strategies will show a preference for the DARK leader (and vice versa).

**62. Both myside bias and the tendency to base one's beliefs on the beliefs of one's associates, in combination with multiple forms of "mis-thinking" that help form and fortify these cognitive biases, are likely natural selection-derived cognitive mechanisms that make objective political thinking difficult or impossible.**

*Timothy Sawyer (Epistemic Crossroads, tesawyer@protonmail.com)*

In forming political beliefs, people generally utilize non-reflective heuristics-based approaches that lead to multiple "mis-thinking" phenomena. These include substitution (replacement of complex questions with simpler, easier to answer questions); belief formation influenced by cognitive biases including a) basing new beliefs on existing convictions, including political allegiances (i.e. myside bias), and b) basing new beliefs on the beliefs of one's associates; backward thinking (identification of confirmatory evidence following belief formation); ignoring of conflicting evidence; overconfidence; and belief perseverance. In our ancestors' environments, myside bias, by facilitating beliefs empathetic to and supportive of in-groups (especially kin) and antipathetic toward out-groups, likely conferred selection advantages. The tendency to base beliefs on those of one's associates, by facilitating learning in an information-sparse environment, also likely conferred selection advantages. The above additional "mis-thinking" phenomena would have helped form and fortify advantageous, cognitively-biased beliefs. Both myside bias and the tendency to base one's beliefs on those of one's associates, each combined with multiple phenomena that reinforce cognitively-biased thinking, are likely natural selection-derived cognitive mechanisms. Cognitively-biased political thinking is likely innate, rendering objective and independent formation of political beliefs extremely difficult.

**63. Rocks and Cavemen, Clicks and Trolls: How Trolling may be the Modern Equivalent of Rock-Throwing**

*Kyle Powell (State University of New York at New Paltz, powellk4@newpaltz.edu) & Glenn Geher*

The theoretical work of Bingham and Souza lays a compelling foundation for the evolution of human social cooperation. The theory hinges upon the unparalleled rock-throwing ability of human beings, and the use of this ability, combined with strong social cooperation tendencies, by our physically weaker ancestors to level the playing field with their larger, more physically imposing conspecifics. Recently, the invention and rapid dissemination of the internet and social media has provided a brand-new way for weaker individuals to strike at those more powerful than them: Online trolling, or the creation of meaningless arguments to generate chaos and stir up responses from powerful individuals and organizations. Trolls suffer little personal risk in this endeavor, and thus, the following theory is proposed: Online trolling is a modern-day extension of rock-throwing, and, since it is cheaper and easier than rock-throwing, it poses a direct threat to society as a whole.

**64. Adaptive and Maladaptive Affective Responses to Natural and Technological Disasters**

*Soheil Shapouri (University of Georgia, ss25990@uga.edu), Leonard Martin, & Saed Rezayi*

Our systematic review of comparisons between phylogenetic and ontogenetic threats indicated the predictions of biological preparedness and fear module theories regarding stronger resistance to extinction, stronger illusory correlation, and faster reaction time for ancient threats were not supported by empirical studies, but brain imaging studies show ancient threats (e.g., snakes, spiders) and modern threats (e.g., guns, bombs) are processed by different neural networks. In an archival study using seven standardized affective stimuli datasets, we showed that affective responses to natural disasters (e.g., flood, drought) and technological disasters (e.g., road accidents) are different and technological disasters are rated as more unpleasant despite the fact that they actually kill fewer people and cause fewer injuries than natural disasters. In an ongoing study of social media, we are

going to replicate our findings by using emotion mining techniques and comparing the intensity of emotional expressions on Twitter related to 60 different natural and technological disasters. Here, we present the results of these three studies that together show how the evolutionary mismatch hypothesis and ancient-modern dichotomy of evolutionary psychology can be applied to the study of climate change-related events, facilitate multidisciplinary research, and connect evolutionary theory with risk sciences.

**65. Mysteries without pedagogy. Evolved mental mechanisms explain the puzzle of apparently irrational cargo cult imitation**

*Radu Umbreș (SNSPA, radu.umbres@gmail.com)*

This presentation attempts to solve a century-old puzzle: why did various Melanesian groups engage in independent and spontaneous but apparently irrational mimicry of Western behaviours and artefacts? Evolved dispositions for teleological reasoning (Gergely and Csibra 2006) and epistemic vigilance (Sperber et al 2020) drove the apparently irrational - but psychologically and contextually reasonable - copying of ineffective practices like military parades, radio communication, or keeping flowers in vases. These ostensive but apparently goal-less behaviours were inferrentially interpreted as mysterious but relevant means used by White people to obtain economic and social prosperity i.e. “cargo”. A qualitative review of a large archive of books and articles written by lay observers and anthropologists confirms that cargo cultists selectively imitated cognitively-opaque behaviours but not intelligible ones. A comparative analysis of the adoption/adaptation of Christian rituals and theology further elaborates on the causal role played by 1) folk epistemologies of secret knowledge, 2) reciprocal mistrust between natives and colonisers, and 3) ”big men” competitive mimicry. Engaging with the growing conversation around cultural imitation (Whitehouse 2021, Jagiello et al 2022), this study suggests that learning rituals and technology engage the same evolved mental architecture.

**66. Racial differences in fertility-status tradeoffs reveal the impact of social mobility opportunities on optimum family size in the US**

*Sally Li (University of California, Los Angeles, sallyli@g.ucla.edu)*

Modern trends in low fertility can in part be explained by increasing incentives to invest in offspring’s embodied capital over offspring quantity in environments where education is a salient source of social mobility. However, studies on this subject are often in mono-ethnic populations, missing out on the opportunity to investigate how this relationship is impacted by structural factors that asymmetrically allocate social mobility prospects between group members. Using GSS data from the US, I examine changes in the relationship between number of siblings and college attendance for White and Black individuals throughout the 1900s. Results showed that White individuals from larger families had a lower chance of completing at least two years of college education than individuals from smaller families, while the chances for Black individuals stayed relatively similar across family sizes. This racial difference was larger in cohorts born in the early 1900s and converges in the later part of the century. Therefore, the benefits of decreasing family size to invest in education may be conditional on the social mobility opportunities allowed for the family. These results explain variations in the timing of demographic transitions within subpopulations of a nation.

**67. Are there ethical risks to applying life history theory to human behavioral variation?**

*Sophie Klitgaard (University of California, Los Angeles, klitgaardsophie@gmail.com) & Ashley Mensing*

Life history theory (LHT) has emerged as a popular explanatory framework within the evolutionary social sciences to describe variation within a large suite of human behaviors (including but not limited to) risk-taking, aggression, parenting behavior, sexual behavior, personality, and attachment styles. While perspective is often used to promote an adaptationist view on crime and other "undesirable" or "deviant" behavior, these interpretations are seldom accompanied by recognition of the fact that theorizing about commonly moralized behavior entails ethical risks. Even when investigators are scrupulous in their approach, rarely are the potential harms of such explanations explored, and, consequently, even more rarely are they guarded against. We systematically reviewed mainstream literature applying LHT to explain variation in human behavior and identified several patterns of risk. These risks are summarized and presented as a call to theorists in this space to carefully consider downstream applications of their work. We consider these risks as they relate to purported potential benefits of this application of LHT, and additionally provide possible suggestions for minimizing the risk of harm.

**68. The Development of Specialized Fears**

*Paola Alejandra Baca (University of Texas at Austin, paolabaca@utexas.edu), Rebecka K.Hahnel-Peters, & David M. Buss*

Specialized fears are thought to be psychological adaptations that influence emotional, cognitive, and behavioral protections against the fear target. These fears are hypothesized to come online developmentally at around the period in which they would have been relevant through our ancestral history. Our study aims to investigate the age in which the fear of sexual assault comes online including predictable gender differences and changes in the motivation underlying the fears and anxieties. We do this through asking participants aged 8-15 how afraid they would be being in a room with a man vs. woman, an acquaintance vs. stranger, and having the person either touch them, have a baseball bat, or be neutral. Our research ultimately aims to help inform education, parenting, and public safety policy through understanding the potential mismatch between children's fears and actual threats. Data will be collected and analyzed before the Human Behavior and Evolution Society (HBES) 2023 conference.

**69. A simple agent-based model for the coevolution between personality and wealth**

*Guanghao Liu (The University of Tokyo, ghliu1988@hotmail.com), Yu Chen, Hidenori Komatsu, Maryanne L. Fisher, Nobuyuki Tanaka, Yasuhiro Hashimoto, & Aoshi Suzuki*

In a previous study, we have proven that statistics of Big-5 traits have an influence on the distribution of wealth. Through literature reviews, we found that the coevolution between wealth and personality has not yet been studied. In this research, we build an agent-based model with 2 layers, namely the economic layer and the social layer. In the economic layer, spatially distributed resources are changing in their locations and quantities slowly with time. In order to survive, agents will do their best to get resources from this layer. In the social layer, agents shall modify their personalities through interactions with linked agents, from whom agents can also get the information of resources. Personality traits of an agent will affect its ability of gaining resources as well as the

changing rate of its personality. By performing a series simulations with this model, we can give an explanation of the mechanism for the process of coevolution between personalities and wealth. We also explore the model by changing the parameters of this model to investigate which are key factors that influence the formation of the well-known Pareto wealth distribution and the Gaussian type personality distributions.

**70. Looks and status are still essential: Testing the mate preference priority model with the profile-based experimental paradigm**

*Jose Yong (Northumbria University, jose.yong@northumbria.ac.uk), Yi We Tan, Norman Li, & Andrea Meltzer*

Although the mate preference priority model (MPPM) has advanced our understanding of mate preferences, tests of the MPPM have relied on methods using text labels and thus lack ecological validity. The presented study addressed this gap by testing the MPPM using J. M. Townsend's profile-based experimental paradigm, which utilizes profiles comprising photos of pre-rated models to manipulate physical attractiveness as well as costumes and descriptions to manipulate social status. Using Singaporean samples, we conducted two studies (Study 1 n = 431, Study 2 n = 964) where participants judged the short-term and long-term mating desirability of opposite-sex profiles varying systematically on physical attractiveness and social status. We also tested whether treating these attributes as ordinal or continuous variables would be more valid. Results showed broad support for evolutionary predictions of mate preferences and priorities while revealing an increased premium placed on social status in our sample. We also found that continuous operationalizations produced less inflated results. The current research provides the first non-label, profile-based test of the MPPM, a well-powered replication of the profile-based paradigm, and an opportunity to observe the robustness and variations of mate preferences in a non-Western culture.

**71. A preliminary investigation into the impact of active vs. passive cycling on cortisol and self-reported stress response behaviors**

*Lisa Welling (Oakland University, welling@oakland.edu), Sarah Battle, Megan Carulla, & Kathryn M. Rougeau*

The tend-and-befriend response is exhibited more by women than men and involves tending to relationships in response to stressors1. Cortisol, which is released in response to physical and psychological stress2, is positively related to affiliative behaviors in women, but negatively related in men3. Here we investigated the relationship between active (i.e., the participant volitionally pedals) and passive (i.e., motor-driven) cycling on cortisol response and self-reported tend-and-befriend and fight-or-flight behaviors. Participants (N=34, 12 women) participated in 30 minutes of active and passive cycling 2 days apart (order counterbalanced) and provided saliva samples to assay cortisol before, immediately after, and 30 minutes after exercise. Participants also completed a modified4 version of the Tend-and-Befriend Scale5 to assess tending, befriending, fight, and flight responses to stress. Cortisol decreased significantly over time in both conditions, but did not differ significantly between conditions and did not correlate with stress responses. However, participants did report higher tend and flight responses after active exercise, and higher befriend and fight responses after passive exercise. There were no sex differences. Results suggest that stress responses vary depending on the physiological stress level, but cortisol does not influence this relationship.

**72. Mating and survival in classic Chinese fiction: An evolutionary social psychological analysis of Dream of the Red Chamber**

*Shui-Yun Yu (Mingchuan University, syyu@mail.mcu.edu.tw), Yi-Jhen Chen, Nicole R. Y. Chen, & Norman P. Li**

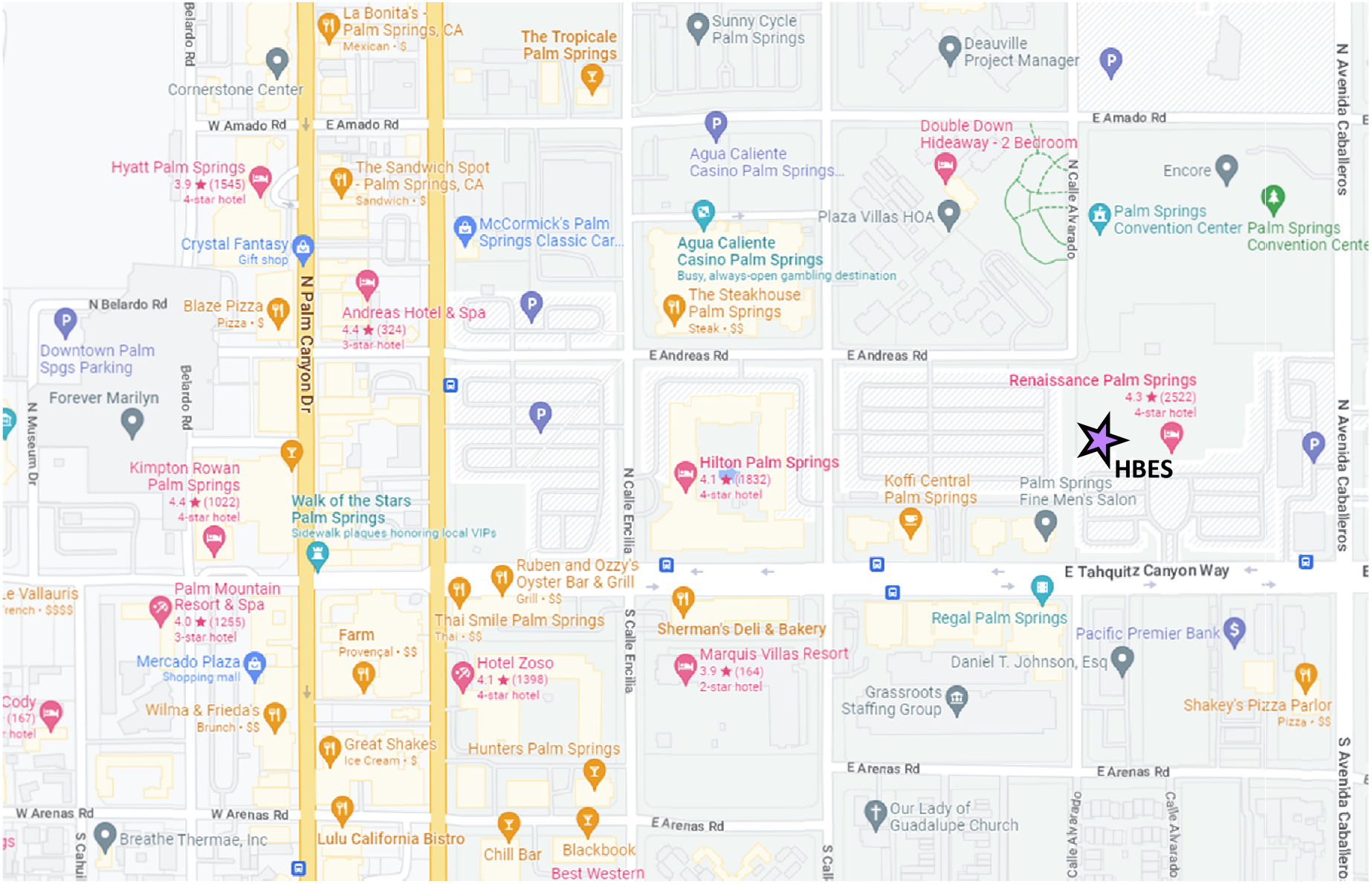
We examine, for the first time, the 18th century Chinese novel "Dream of the Red Chamber", from an evolutionary social psychological perspective. This novel, widely considered one of the four most important classic works of Chinese literature, describes the intertwined lives of four aristocratic families (Jia, Shi, Wang, and Xue), following them from prosperity to decline. A major portion of the novel involves mate selection for the familes' masters, sons, daughters, and servants. Through various forms of competition, cooperation, and compromise, many characters find ways for their progeny to survive through the next generation. We examine how key mate selection and parental care dynamics impact the lives of the various characters and how jealousy, fear, anger, sadness, and empathy come into play in shaping decisions and outcomes.

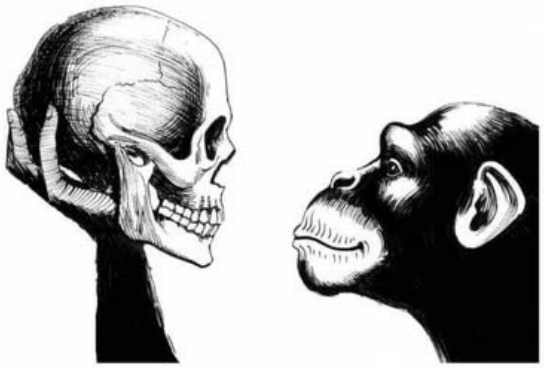
**73. Visual discomfort of natural textures in relation to trypophobic and skin diseases images**

*R. Nathan Pipitone (Florida Gulf Coast University, npipitone@fgcu.edu), Chris DiMattina, Martin R. Renteria, & Kriston J. Ryan*

Trypophobia is the discomfort felt by some individuals when viewing clusters of circular objects (e.g., bumps or holes). This reaction might be an adaptive response to avoid skin disease / ectoparasites. Although trypophobic and disease imagery are both examples of visual textures, there has been no visual discomfort comparison to unpleasant natural texture imagery. We administered the Trypophobia Questionnaire (TQ) and had participants rate the comfort levels of standard natural textures, trypophobic images, and skin disease images. Results showed that while most observers find skin diseases uncomfortable, only high-TQ individuals rated trypophobic imagery equally uncomfortable to view. Both high-TQ and low-TQ populations show consistent rank-order preferences when rating standard textures based on certain texture properties. Interestingly, the most unpleasant textures rated by both groups exhibit qualities similar to trypophobic images. Other results, such as the poor predictability of low-level image statistics previously shown to affect visual comfort will be discussed.

# Walking Map around Hotel and Downtown Palm Springs





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University of Zurich

David Schmitt
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University of Zurich

Abstract submission: May 31, 2023
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