

Female leadership: A transdisciplinary perspective

1 | INTRODUCTION

A workshop on *Female leadership in mammalian and human societies: Integrating biological and social science perspectives* was hosted by the Institute for Advanced Study (Wiko) in Berlin, Germany, on February 21 and 22, 2019 (Figure 1). The workshop was organized by Peter Kappeler and Claudia Fichtel (German Primate Center, Göttingen, Germany), Mark van Vugt (Vrije Universiteit, Amsterdam, The Netherlands) and Jennifer Smith (Mills College, Oakland, CA), who used an opportunity available to former Wiko Fellows to organize intense workshops on transdisciplinary topics.

This workshop was motivated by the understanding that a broad comparative framework may offer new insights into factors shaping sex-biases in leadership across mammalian societies, including those of humans. In humans, women remain universally underrepresented in the top leadership positions in business and government. Novel theoretical and empirical approaches are required to understand why so few women occupy leadership roles in human societies. A comparative framework integrating biological and social science perspectives may offer new insights into the general patterns of, and potential barriers to, female leadership (we define leadership in terms of exerting a disproportional influence on collective decisions). Despite recent advances in comparative leadership studies, several fundamental gaps in our understanding of sex-biased leadership remain.

The organizers therefore proposed a new agenda for assessing the ways that across species females exert influence in groups, looking at similarities and differences with male leadership. Experts from the biological and social sciences focused on the various social-ecological factors in favoring female leadership across various nonhuman mammalian groups, small-scale human societies, and modern, complex human societies (where we also considered the role of cultural evolution). Other contributions addressed the power of female bonds, female leadership in networks and coalitions, cultural-historical perspectives, and societal implications of female leadership.

2 | FEMALE LEADERSHIP IN NONHUMAN MAMMALIAN SOCIETIES

The focus of the first day of the workshop was on female leadership in diverse mammalian societies. Peter Kappeler opened this session by outlining the available comparative approaches toward a more

comprehensive understanding of human and mammalian sex roles. Comparisons across different contemporary human societies can be just as informative in this context as analyses of gender biases in various historical societies. Interspecific comparisons with other mammalian societies, where males and females share the same fundamental life history traits that characterize traditional sex roles, can help to identify fundamental evolutionary patterns and processes. Adopting a Tinbergian approach, he showed that such a comprehensive perspective can yield complementary answers and insights. For instance, sex differences in physical strength and testosterone levels may promote the observed male bias in social power from a proximate perspective, whereas vicarious reinforcement and social norms can offer developmental explanations. Furthermore, preliminary evidence seems to suggest the existence of some fitness benefits for leaders, indicating that ultimate advantages may contribute to the stabilization of existing sex biases. Finally, historical considerations seem to indicate that any form of political leadership is a very recent phenomenon in human societies because it is absent in societies thought to represent the social systems of human societies prior to the Neolithic revolution; a fact that need to be acknowledged by comparative studies across primates and other mammals.

Jennifer Smith proposed an integrative perspective to address gender bias in human leadership. Smith summarized the results of a recent comparative study, contrasting patterns of leadership across four dimensions (emergence, distribution, power, and payoff) and four contexts (collective foraging, movements, within-group conflict resolution, and between-group conflicts). Application of this framework to 76 social species of nonhuman mammals for which patterns of leadership are known across all four contexts, female-biased leadership is generally rare, but pervasive in the societies of killer whales, lions, spotted hyenas, bonobos, lemurs, and elephants, in which leaders emerge without coercion and followers benefit from the social support and/or ecological knowledge from elder females. In some of these societies, female leadership emerges from female alliances and kinship networks, emphasizing more subtle forms to achieve leadership.

Lauren Brent (University of Exeter, UK) established a link between leadership and life history traits, especially aging. Because females live longer than males in the majority of mammalian species, they have a greater opportunity to accumulate experiences that may be useful in a leadership context. Drawing on results of her long-term studies of killer whales and rhesus macaques, Brent proposed that older females might



FIGURE 1 Participants of the female leadership workshop at the Institute for Advanced Study in Berlin, Germany [Color figure can be viewed at wileyonlinelibrary.com]

indeed have enhanced social and ecological knowledge compared to other adults that become particularly important during periods of ecological hardship. This contribution therefore provided an instructive example of how and why biases in ecological knowledge may inform subtle, but functionally important forms of female leadership.

Claudia Fichtel emphasized the fact that individuals engage in collective actions in a sometimes highly coordinated way, as for example during joint defense of a territory or during group movements. In many mammalian species, there is a context-dependent sex difference in leadership, however, with females emerging as leaders during group movements and males during inter-group conflicts. This sex difference might be due to a different operationalization of leadership in different contexts. During group movements, initiating individuals are considered as leaders whereas leadership has mainly been inferred by participation in conflicts and not by initiating a joint attack of an opponent group on the context of inter-group conflict. Fichtel illustrated this discrepancy with new data on sex differences in leadership in in-group movements and inter-group conflicts in red-fronted lemurs and Verreaux's sifakas.

Odile Petit (CNRS, Strasbourg, France) critically questioned the myth that polygynous primates and equids provide quintessential examples of consistent male leadership because they exhibit a particular form of herding behavior. Drawing on her own work with domestic horses and western lowland gorillas, she showed, however, that males rarely initiated collective group movements and sometimes failed to recruit the entire group. Removal experiments with horses revealed that collective movements were five times slower and mares were more dispersed in comparison to situations when the stallion was in the group. Thus, males only have an indirect influence on group movement dynamics and they did not play a specific role in the process of decision-making, indicating that these species with pronounced sexual

dimorphism are also characterized by distributed leadership, that is, it is not limited to a single individual.

Hannah Mumby (Cambridge University) reported on her work on elephants, which live in sex-segregated fission-fusion societies. As a result, their groups are led by females by default. Some studies indicated a link between personality traits and leadership, whereas others examined the effects removing the leader by poaching. Mumby also discussed the intriguing interaction between sex and leadership across species in Asian elephants, where captive females are said to be easier to work with, as reported by their invariably male handlers.

3 | FEMALE LEADERSHIP IN HUMAN SOCIETIES

The second day of the workshop focused on questions and research on human female leadership from the perspective of social scientists.

Daniel Schönplug (Free University & Wissenschaftskolleg, Berlin, Germany) provided a historical perspective on female leadership, concentrating on European high nobility. Powerful dynasties like the Bourbons, the Habsburgs, or the Hohenzollern have presented themselves as a long chain of male rulers, linked by the eternal laws of "primogeniture," limiting female members to roles as providers of legitimate offspring and decoration for court festivals. However, a closer look revealed queenship and (formal and informal) female regency were actually not so rare. Moreover, women often benefited from influential collateral links through female relatives, mostly through marriages, between families empowered female members of dynasties. Sisters, wives, aunts, mothers, grandmothers, and widows often played important diplomatic roles, held positions of power within the clan, or were

crucial for the transmission of property from generation to generation. Thus, despite the power of male rulers, there was more than one strong position in the first families of European states, and positions of strength and weakness, of command and obedience were continuously renegotiated and redistributed.

Such a more nuanced view of gendered variation in social power was also offered by Sarah Richardson (Harvard University), who argued that evolved sex differences probably play little to no causal role in gendered leadership patterns experienced in modern post-industrial societies. In her view, the propensity to think of sex difference in terms of means and not variance exaggerates differences between the sexes. Several empirical examples of geographical variation and recent changes over time demonstrated that sex segregation in STEM outcomes (i.e., skills and occupational roles in science, technology, engineering, and math) are relatively small, volatile, and more strongly affected by gendered aspirations. These insights should be applied by leadership researchers to counter prevailing claims of androcentrism and gender essentialism.

Meredith Reiches (University of Massachusetts) used two historical examples to examine gender roles in small-scale societies. First, the depiction of the Fuegians, a historical small-scale society in Patagonia, by Charles Darwin and his contemporaries illustrates how interpretations of gendered behavior in small-scale societies were used to justify imperialism abroad and gender hierarchy at home. Second, assuming that violence is typically gendered masculine, a massacre of 27 men, women, and children at Nataruk near Lake Turkana about 10,000 years ago provides an opportunity to ask to what extent intergroup violence was important in the behavioral repertoire of theoretically peaceful, nomadic hunter-gatherers. Based on these examples, she argued that the behavioral ecology and archeology of small-scale societies tell us as much about the gender ideology of the moment as about contemporary possibilities for gender equity in leadership.

Chris von Rueden (University of Richmond) examined the contribution of sex differences in physical formidability, education, and cooperation to the acquisition of political leadership in the Tsimane, a small-scale society in the Bolivian Amazon. In this society, men are more likely to exercise different forms of political leadership, including verbal influence during community meetings, coordination of community projects, and dispute resolution. However, these differences in leadership are not due to gender per se but are associated with men's greater number of cooperation partners, greater access to schooling, and greater body size and physical strength. Men's advantage in cooperation partner number is tied to their participation in larger groups and to the opportunity costs of women's intra-household labor. This example highlights the mutual influence of sexual selection and the sexual division of labor in shaping how women and men in this society acquire leadership.

The contribution of Dorothy Carter (University of Georgia) concentrated on gendered leadership in modern organizations. In contrast to most biological studies, organizational research has depicted leadership as a relational phenomenon that can emerge outside of formalized hierarchies through processes of claiming and granting influence to form leadership networks connecting people within and across groups. In economic practice, this shift in perspective has coincided with

an intensified organizational reliance on flatter, decentralized, and self-managing work structures as well as the entry of more women into the workforce. Future research will have to examine how potential gender differences in how leadership and followership are conceptualized and enacted informally in networked organizational systems.

The contribution by Wendy de Waal-Andrews (Vrije Universiteit, Amsterdam, The Netherlands) also dealt with gendered leadership in the modern workplace. She reported on her studies that evaluated the effectiveness of different leadership styles; in particular, how patterns of dominance-based leadership are perceived compared to leadership based on prestige. Whereas prestige-based leadership is viewed as the most effective style by all company members, higher-level managers engage in more dominant leadership than managers at lower levels, irrespective of their gender.

The final presentation by Mark van Vugt provided a new perspective on the glass ceiling hypothesis, that is, the idea that the promotion of qualified women to senior positions is hampered by invisible organizational barriers that have cultural (gender stereotypes) as well as biological roots (maternal duties). He argued that, compared to men, certain aspects of women's evolved psychology and behavior may be less well aligned with functioning in large, modern hierarchical organizational structures. Women's tendencies to be, on average, more risk averse, cooperative, to exhibit a more communally oriented leadership style, in combination with constraints associated with childcare duties, may be a disadvantage in climbing up the organizational ladder. He also made a distinction between two leader types, prestige versus dominant leadership, and provided some evidence that in humans, males use a more dominant leadership style (primarily for conflict management) and females use a more prestige-based leader style (primarily for social learning and information transmission). This has implications for the glass ceiling, because in modern, complex societies dominant leadership is often the norm favoring the ascendancy of men into top leadership roles.

4 | OUTLOOK

In addition to offering many new specific insights and perspectives, the workshop reached a number of tentative conclusions. First, discussions emphasized that we still lack an agreed-upon definition of leadership across disciplines because some definitions equate leadership with dominance and power, others with status, prestige, and individual differences in the ability of certain (classes of) individuals to influence collective behavior. Further, the implicit assumption that a single individual, typically a male, controls all group decisions is naïve and does not match the empirical evidence from studies of mammalian societies. Our synthesis of the existing data revealed a more diverse pattern characterized by social power being shared by multiple individuals to various extents in different adaptive contexts. Similarly, despite the impression of an overwhelming bias in male political, economic, scientific, and religious leadership, conceptual, historical, and empirical data indicate that gender and leadership cannot be studied meaningfully via adopting a simplistic, binary framework (male vs. female; leader vs. follower). Further, aspects

on more subtle forms of female power and leadership, for example via influential collateral links, may provide another promising approach study female leadership in nonhuman animals and humans. Another interesting open question for future study emerging from the workshop discussions concerns the existence of the cognitive abilities of mammals to perceive and represent the shared goals of all group members—which is fundamental to human leadership—and whether such joint goals exist at all. Thus, the topic of female leadership is an intellectually challenging, interesting, and practically important one, but modern research in various disciplines has only scratched the surface by identifying a first set of questions and themes for future inquiry.

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