

Blakely Competition Entry

**Romeo, Lady Gaga, and Flamingos:
Evolutionary Biology in a Hair-Obsessed World**

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Romeo found himself in a less-than-ideal, emotionally complex situation: lovesick for Juliet, mourning his friend Mercutio, guilty from murdering Tybalt, and banished from his home. Upon learning of his punishment, Romeo explains that he might as well tear out his hair and dig his own grave:

*... then mightst thou tear thy hair
And fall upon the ground, as I do now,
Taking the measure of an unmade grave.*

Romeo doesn't end up leaving home. Well, not exactly – but it is a dramatic tragedy. In this scene, Romeo's urge to pull out his hair has more meaning than just a display of drama.

A connection between hair-pulling and stress was made long before Shakespeare conjured up his iconic Romeo. As early as the 4th century BCE, the Greek physician Hippocrates wrote about people who tore their hair in emotionally stressful situations. And today we give the practical advice “don't pull your hair out over it” not knowing the advice is soundly grounded in biology.

Trichotillomania is a hair-pulling disorder that can result in significant hair loss and is related to other disorders that involve aspects of excessive grooming behaviors (think: obsessive-compulsive disorder and compulsive skin picking). Because of its relationship with stress, some researchers believe trichotillomania arises as a strategy for regulating emotions. A 2016 study¹ by Dr. Gioia Bottesi and colleagues published in the journal of Psychiatry Research had 89 Italian participants rate their experience of various emotions during their hair-pulling cycles (before, during, and after). Participants felt higher levels of pleasure and relief during pulling, but after pulling, they felt more shame, sadness, and frustration. Contrasting emotions like these suggest that hair-

pulling may have an unfortunate feedback, a bit like an addictive behavior.

What's more, these feelings of shame are amplified by their existence in a world that is obsessed with hair, often leading to social isolation.

It is undeniable that hair is a key part of human beauty and identity: Hair renders us eligible for adulthood, we are judged by it, and we seem to like it that way. References to hair in popular music such as Lady Gaga's "Hair"² and Solange Knowles's "Don't Touch My Hair"³ embody this. Gaga sings "I am the spirit of my hair", and Knowles associates her hair to her feelings, her soul, her rhythm, and her pride. Cultural and societal issues even surround these representations of hair: for instance, Knowles's song tackles issues of race and femininity in modern day America⁴.

The importance of hair transcends cultural and gender boundaries and is deeply rooted in history.

Myths are replete with stories of hair representing strength, power, and beauty: Samson and Medusa were both punished by, respectively, having their hair cut off or turned into snakes; the long golden locks of the Norse Goddess Sif represent the bountiful harvest; Rapunzel's long hair represents hope and beauty; the list goes on.

The common theme, and one that horrendously continues to this day⁵, is that when hair is forcibly altered by others, we are robbed of a part of ourselves. Lady Gaga tells us this is the case for her, quite literally, when she sings "Mom will cut my hair at night, and in the morning, I'm short of my identity."

Consequently, society is inadvertently telling people who suffer from trichotillomania that they are robbing themselves of their identities, which reinforces low self-esteem and social withdrawal to hide hair loss. As it is, grooming is a highly social activity — every culture has social-grooming traditions: public baths, salons, spas, barber shops, you might even start thinking of your dentist as

a highly-educated professional groomer — all of which renders the isolation and loneliness even more distressing.

Currently, researchers ask whether these pathological grooming behaviors are excessive degrees of adaptive grooming behaviors, or, more generally, distortions of the process.

The primary reason we groom is not to ensure that our nail color always matches an outfit or a season (though pink always works), but to maintain health and hygiene by removing potentially harmful foreign objects, like parasites, from the body.

It's easy to see how this behavior is beneficial, but adaptations often acquire less obvious secondary functions: Many birds possess a gland above the base of their tail containing oil. The oil is spread during grooming onto the beak, feathers, and feet and acts to promote structural integrity and waterproofness of the feathers — both of which are positive outcomes.

For the flamingo, grooming acquired yet another function: A cosmetic one. Not unlike us, flamingos apply rouge⁶ while grooming as their oil gland contains colored pigments acquired from the critters they eat. Pink works especially well for flamingos during mating season as it signals health to potential mates. Unsurprisingly, flamingos spend a significant amount of time grooming before mating season.

Humans also groom to impress each other and grooming between romantic partners has been correlated⁷ to relationship satisfaction and to trust.

Trusting relationships help build communities and social systems that provide improved nutrition, shelter, and defense, and environments for cooperation and learning. And there are scenarios when high levels of grooming would be advantageous within communities, especially in stressful situations: It is better to be surrounded by clean people during a disease outbreak; It is better to be undetectable by scent if being hunted, or while hunting.

Olfactory Reference Syndrome is a related disorder where a person is hyper-aware of body odor to the point of constantly cleaning oneself.

Excessive grooming behaviors are not unique to humans. Under stress, birds pull out feathers, cats⁸ and dogs lick off fur, and mouse “barbers” remove their own fur and even the fur of cage mates. But the types of stress that cause these behaviors are largely undefined and quite ambiguous.

Today, our social and cultural identities are embodied by the many ways that we groom, forcing people who suffer from disorders related to grooming to feel stigmatized and stripped of their strength and identity.

It is important to bring these disorders into public awareness to promote research – if we understand the science and history of why we live in a world obsessed with grooming, maybe we can help erase feelings of isolation for many who suffer for it.

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