

# The Relationship Between Familial Resemblance and Sexual Attraction: An Update on Westermarck, Freud, and the Incest Taboo

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## Abstract

Foundational principles of evolutionary theory predict that inbreeding avoidance mechanisms should exist in all species—including humans—in which close genetic relatives interact during periods of sexual maturity. Voluminous empirical evidence, derived from diverse taxa, supports this prediction. Despite such results, Fraley and Marks claim to provide evidence that humans are sexually attracted to close genetic relatives and that such attraction is held in check by cultural taboos. Here, the authors show that Fraley and Marks, in their search for an alternate explanation of inbreeding avoidance, misapply theoretical constructs from evolutionary biology and social psychology, leading to an incorrect interpretation of their results. The authors propose that Fraley and Marks's central findings can be explained in ways consistent with existing evolutionary models of inbreeding avoidance. The authors conclude that appropriate application of relevant theory and stringent experimental design can generate fruitful investigations into sexual attraction, inbreeding avoidance, and incest taboos.

## Keywords

evolution, family, attraction, inbreeding avoidance, Westermarck, sexual imprinting

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Recently, Fraley and Marks (2010; hereafter, F&M) argued against the existence of an evolved inbreeding avoidance mechanism, promoting instead a Freudian-derived cultural explanation of human inbreeding avoidance. F&M claim to show that individuals are implicitly sexually attracted to their close genetic relatives and that, because of cultural proscriptions, this attraction is attenuated when brought into conscious awareness. These assertions are problematic for a variety of reasons. Below we summarize F&M's findings, discuss the various conceptual problems in the logic motivating these studies, and reexamine the findings from each of their studies. We conclude that the results reported by F&M are consonant with—not contradictory to—interesting, and biologically plausible, extensions of contemporary evolutionary perspectives on human inbreeding avoidance.

## Summary of Findings

F&M assert that a paradox exists in the literature. On one hand, evolutionary anthropologists and evolutionary psychologists claim to provide evidence that childhood coresidence duration serves as a cue of biological relatedness, subsequently leading to the development of sexual aversions toward one's

siblings—an effect first proposed by Westermarck (1921) and now termed the Westermarck effect. On the other hand, social psychologists have found that increased exposure leads to greater liking—the mere exposure effect—and that greater familiarity, proximity, and similarity are important dimensions governing sexual attraction (Berscheid & Walster, 1974; Zajonc, 1968). Thus, F&M ask, how can exposure lead to both aversion and attraction?

Seeking to provide an alternate explanation of human inbreeding avoidance that resolves this paradox, F&M propose that people are actually sexually attracted to their close kin but cultural taboos prevent the manifestation of these preferences.

Across three studies, F&M claim to find support for their hypothesis. In Experiment 1, F&M examined the effect of subliminal presentation of a photo of one's opposite-sex

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parent on attractiveness ratings of strangers. Compared to control participants, participants who were subliminally primed with their own opposite-sex parent's face rated strangers' faces as more sexually attractive. In Experiment 2, F&M found that self-morphed faces were rated as more attractive than non-self-morphed faces. In Experiment 3, participants who were told (falsely) that images had been morphed with their own faces and (correctly) that the purpose of the study was to investigate incest rated these images as less sexually attractive than participants who were not given the same information. From these results, F&M conclude "people experience greater sexual attraction for people to whom they are related" (p. 1211) and that this is why cultural taboos against incest exist. There are a number of problems with this interpretation.

### Problematic Conceptual Foundations

F&M base their challenge to Westermarckian explanations of inbreeding avoidance on two literatures. The first explores sexual imprinting. Individuals tend to be more sexually attracted to, and more likely to marry, others who share attributes with their opposite-sex parent (Berezkei, Gyuris, & Weisfeld, 2004; Little, Penton-Voak, Burt, & Perrett, 2003). F&M draw on the work of evolutionary biologist P. Bateson (1983), who argued that such sexual imprinting serves to achieve an optimal balance between inbreeding (which depresses fitness by increasing the chance of expressing deleterious alleles in offspring) and outbreeding (which decreases the degree of relatedness to, and thus the fitness value of, offspring).

Critically, F&M read Bateson as proposing that close kin should be attracted to one another: "According to Bateson, sexual imprinting leads animals to find individuals with whom they were raised (typically kin) sexually attractive" (p. 1210). In fact, Bateson (1983) actually says, "I proposed that sexual imprinting sets the standard (or standards) of what immediate kin look like and the animals subsequently prefer to mate *with an individual who looks slightly different* [italics added]" (p. 265). Consonant with the well-established fitness costs of mating with close kin, Bateson does not claim that individuals will find close kin attractive but rather that they will favor less-related others whose resemblance to close kin reveals an optimum balance between the costs of inbreeding and the costs of outbreeding. This is a crucial distinction.

The second literature that forms the base of F&M's challenge to Westermarckian explanations of inbreeding avoidance documents that familiarity breeds attraction. Social psychologists have long recognized that repeated exposure to a stimulus produces more positive attitudes toward that stimulus (e.g., Zajonc, 1968), an effect that obtains across diverse stimuli (Bornstein, 1989). Correspondingly, repeated exposure (to unrelated, similarly aged peers) can generate increased

sexual attraction (Moreland & Zajonc, 1982). These findings, combined with the generally accepted notion within social psychology that familiarity, similarity, and proximity are dominant factors governing sexual attraction (Berscheid & Walster, 1974), lead F&M to predict that, contrary to Westermarckian models, individuals will be sexually attracted to their close kin.

Although the study of familiarity and homophily does shed light on mate selection, nonetheless, as conventionally framed, such investigations are not germane to inbreeding avoidance, as work of this type largely overlooks kinship (see Daly, Salmon, & Wilson, 1997). Research on the mere exposure effect and physical attraction *has assumed that the targets of interest are nonrelatives*. This has led to general theories of attraction that do not address behaviors specially tailored to relationships involving kin.

Elementary principles in evolutionary biology suggest that inbreeding avoidance mechanisms should exist in any species, including humans, in which close kin interact throughout periods of sexual maturity (Tooby, 1982). Correspondingly, voluminous evidence documents inbreeding avoidance in other species (Hepper, 1991; Pusey & Wolf, 1996). Claiming that inbreeding avoidance is achieved through cultural taboos, F&M attempt to explain inbreeding avoidance among nonhuman primates in terms of enforced norms (pp. 1204-1205). However, although rudimentary forms of culture do exist in highly encephalized animals (Fragaszy & Perry, 2003), there is no evidence of norm enforcement.<sup>1</sup> Moreover, culture of any kind is absent in still less intelligent species, yet inbreeding avoidance is widespread, making it impossible that cultural proscriptions are solely responsible for such behavior.

### Reinterpreting F&M's Findings

The conceptual foundations motivating F&M's studies are problematic: Optimal outbreeding theory does not predict that individuals will prefer close genetic relatives as mates, and there is no inherent conflict between preferences for familiarity and inbreeding avoidance mechanisms. If F&M's findings are not explicable in terms of sexual attraction to close genetic relatives, how then can their results be explained? Below, we provide several possibilities, starting with F&M's Experiment 2.

In Experiment 2, a stranger's face is morphed with one's own face. Facial self-similarity could indeed indicate genetic sharing. If, as Westermarck proposed, childhood coresidence is a generally reliable cue of close relatedness, then resemblance in the absence of such a shared history could index the intermediate level of relatedness that Bateson's theory predicts should be most attractive (see DeBruine, Jones, Little, & Perrett, 2008). Note, however, that this result provides no evidence of attraction to familiar, closely related individuals—optimal outbreeding is not inbreeding. Likewise, if, in Experiment 1, the subliminally presented image of an

opposite-sex parent is processed in conjunction with the processing of a stranger's face, then the latter might (spuriously) seem to partially resemble the former. Again, resemblance in the absence of childhood coresidence would mark the intermediate degree of relatedness that Bateson predicted should be targeted.

Exactly how subliminal visual primes operate remains unknown, hence the results of Experiment 1 may not be due to the blending of images but rather to a contrast effect. The subliminal presentation of the image of an opposite-sex parent may provide a temporary baseline against which participants evaluate subsequent targets. If evolved inbreeding avoidance mechanisms make one's opposite-sex parent unattractive as a potential sexual partner, then, compared to one's opposite-sex parent, most targets *should* appear more attractive. In this view, F&M's findings simply reveal that, when compared to kin, targets are rated as more sexually attractive.

This leaves Experiment 3, wherein F&M purport to show that conscious awareness of cultural taboos against incest activates sexual aversions regardless of actual similarity. Participants were assigned to either a condition in which they were told nothing or one in which they were told that the pictures were morphed with their own faces and that "[w]e are interested in studying incest. We want to know how attractive people find faces that are designed to resemble genetic relatives such as parents, brothers, and sisters" (pp. 1207-1208). F&M suggest that evolutionary psychological models would predict that participants in both conditions would rate the targets as equally sexually attractive. However, this is a straw man. In keeping with evolutionists' attention to the coevolution of culture and the human mind, evolutionary models (e.g., see DeScioli & Kurzban, 2009) predict that making a cultural norm salient should lead individuals to conform to it. Indeed, the design of Experiment 3 is such that it reveals little else.

F&M's experimental framing elicits social desirability concerns. Consider the following analogy: Evolutionists contend that, consonant with a human male mating strategy of long-term investment, men are attracted to women possessing features that index the optimal combination of youth and sexual maturity, such that highly attractive women combine childlike faces with adult bodies (Jones, 1995). Imagine if skeptics argued that men are actually attracted only to youth and that men select sexually mature partners because of cultural taboos. Our hypothetical skeptics then seek to prove their case by showing that male participants prefer younger-looking female faces less when told (to use phrasing directly paralleling F&M's), "We are interested in studying pedophilia. We want to know how attractive people find faces that are designed to resemble those of children." Would such an experiment prove that proscriptions are responsible for men's avoidance of immature partners? We think not.

Experiment 3 thus tells us what we already knew, namely, that people are concerned with impression

management. It tells us nothing with regard to the claim that people are implicitly attracted to close genetic relatives and are held in check only by cultural norms. Indeed, F&M's core claim ignores the many natural experiments investigated in the context of Westermarck's hypothesis. As was true of the Moroccan case that Westermarck adduced, in Israeli kibbutz endogamy (Shepher, 1983), Lebanese cousin marriage (McCabe, 1983), and Taiwanese bride adoption marriage (Wolf, 1995), not only were there no proscriptions against the mateships at issue but, on the contrary, there were explicit prescriptions in favor of such unions—yet such marriages were nonetheless rare, unsuccessful, or both.

## Conclusion

In sum, F&M's findings are entirely consonant with the Westermarckian position that they seek to challenge. Results from F&M's Experiment 2 are explicable in terms of the combination of Westermarck's hypothesis and, applied correctly, Bateson's functionally distinct optimal outbreeding theory. If subliminal priming has similar effects as facial morphing, then the same applies to F&M's Experiment 1; conversely, if, rather than being the processing equivalent of morphing, subliminal priming produces contrast effects, then the Westermarck Effect alone explains Experiment 1. Experiment 3 simply documents that, when prompted to do so, people conform to norms. While failing in its attempt to replace a Westermarckian model with a quasi-Freudian account, by drawing attention once more to optimal outbreeding and inviting interesting questions regarding the processing of subliminal visual primes, F&M's article nevertheless opens exciting new avenues for the study of human mate selection and inbreeding avoidance.

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## Note

1. The primate example adduced by F&M, from Pusey (2005), is misconstrued—Pusey's stated goal is to review inbreeding avoidance in the absence of cultural proscriptions.

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