



# Envy Mediates the Relationship Between Physical Appearance Comparison and Women's Intrasexual Gossip

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## Abstract

Physical attractiveness is a central component of women's mate value. However, the extent to which women possess attractive physical traits varies between individuals, placing less attractive women at a mating disadvantage. Researchers have suggested that envy may have evolved as an emotion that promotes intrasexual competition in response to unfavorable social comparisons on important mate value traits, such as physical attractiveness. Previous research has shown that envy mediates links between unfavorable appearance comparisons and women's intended appearance-enhancement behavior. In the current research, we extended this framework to examine the link between upward appearance comparisons and women's intrasexual gossip. Women were assigned to either an appearance comparison or control advertisement rating task, and subsequently completed measures of state envy and gossip toward a same-sex rival. Results found that induced appearance comparisons predicted increased envy, which in turn predicted greater willingness to spread negative (but not positive) gossip about an attractive woman. Two cross-sectional survey studies ([online supplement](#)) replicated the model whereby more self-reported upward appearance comparisons predicted more self-reported gossip (Supplemental Study 1) and indirect aggression toward other women (Supplemental Study 2), and these links were mediated by dispositional envy. These results support the hypothesis that envy is an adaptation that promotes intrasexual competition using social aggression in response to unfavorable social comparisons on important mate value traits.

**Keywords** Envy · Appearance comparison · Indirect aggression · Gossip · Intrasexual competition · Evolution of emotion · Mate value

## Introduction

Attracting and retaining viable mates is crucial to reproductive success (de Miguel & Buss, 2011). Of course, individuals vary in their ability to attract desirable partners, in part, based upon their relative standing on important mate value traits (see Arnocky et al., 2014a, 2014b for review). Previous research indicates that men, relative to women, place greater value on a partner's physical attractiveness (Arnocky, 2018; Buss, 1989; Li et al., 2002), leading women to compete within this domain more than men (e.g., Davis & Arnocky, 2020). Researchers have proposed that a suite of social-cognitive and emotional mechanisms might be attuned to

such competition, allowing women to gauge when to invest energy into intrasexual competition. Specifically making appearance-based social comparisons to determine where one stands, relative to other women, on physical attractiveness coupled with emotions such as envy felt in the face of unfavorable comparisons are potentially important motivators of women's intrasexual competition (see Hill & Buss, 2008).

Envy is characterized as an unpleasant, negative emotional response to another person or group of people who an individual perceives to have a superior quality, achievement, status, or possession that they desire and wish a rival would lack (Hill & Buss, 2006, 2008; Parrott & Smith, 1993; Smith & Kim, 2007). Envy is sometimes erroneously conflated with jealousy. Whereas jealousy involves upset over the threatened loss of a valued relationship, envy concerns negative emotions surrounding others who are viewed as superior along certain qualities and a desire to possess those qualities (e.g., Parrott, 1991; Parrott & Smith, 1993). Despite its negative reputation, envy may

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have played a role in the reproductive success of ancestral humans (Hill & Buss, 2006, 2008). Ultimately, the distress that envy elicits may serve an important adaptive function, by leading "... a person to focus on the source of their envy and serve as a motivational mechanism, prompting action designed to acquire the fitness-enhancing resources that rivals have that one lacks" (p.136) (Hill & Buss, 2006). Yet to date, models examining the mediating role of envy to links between women's appearance comparison and intrasexual competition have been limited to appearance-enhancement behavior, to the exclusion of another core component of intrasexual competition: Competitor derogation. The present research addressed this gap by testing whether envy mediates the link between experimentally induced upward appearance comparisons and women's intrasexual gossip.

### Intrasexual Competition

Darwin's (1871) sexual selection theory posits that intrasexual competition allows individuals to obtain mating opportunities and reproductive resources to channel toward their offspring. Researchers have argued that because men pair-bond and invest considerable care and resources toward their offspring relative to most other mammalian species (Fernandez-Duque et al., 2009; Geary, 2000), they also benefit from being more discerning in their mate choice relative to most other mammals (see Arnocky & Vaillancourt, 2017 for review). Accordingly, women are compelled to compete for the favor of a limited supply of desirable and discerning men within the contexts of short- and long-term mating (Baumeister et al., 2017; Campbell, 2004; Fisher, 2013). Relative to women, men's mate preferences are generally more oriented toward accessing physically attractive women (Buss, 1988, 1989). This gives physically attractive women a mating advantage over less attractive women. This preference also plays a motivating role in women's desire to achieve a more attractive physical appearance and outcompete same-sex rivals in the domain of physical attractiveness (Buss & Schmitt, 1993; Davis & Arnocky, 2020).

Consequently, women would benefit from comparing themselves to others as a source of obtaining self-information (Festinger, 1954; Taylor & Lobel, 1989) that is relevant to important mate value traits such as physical appearance (Arnocky et al., 2012; Patrick et al., 2004). Indeed, women have a greater tendency than men to make upward appearance comparisons (Franzoi et al., 2012). When women perceive their attractiveness to be lower than comparator women, they may be increasingly motivated to engage in intrasexual competition (Arnocky et al., 2012).

### Women's Appearance Comparison and Self-promotion

To date, much work on women's upward physical appearance comparison and intrasexual competition has focused on *self-promotion* tactics (Arnocky & Piché, 2014; O'Brien et al., 2009). Self-promotion attempts to increase one's mate value relative to their same-sex competitors by enhancing one's own level of attractiveness (Fisher & Cox, 2011; Fisher et al., 2009). Research has demonstrated that women (and men) who make more frequent upward physical appearance comparisons express more positive attitudes toward cosmetic surgery (Arnocky & Piché, 2014), and that this link is accounted for by a heightened orientation toward intrasexual competition. Women who make upward appearance comparisons also engage in more frequent skin tanning (Arnocky et al., 2016), and are more likely to engage in dieting and disordered eating behaviors to improve their physical appearance (Hill & Durante, 2011; O'Brien et al., 2009). These findings suggest that when women encounter a physically attractive rival, they may engage in making physical comparisons toward her. These comparisons in turn promote appearance-enhancing behavior, ostensibly to boost their own relative mate value.

In contrast with self-promotion, intrasexually competitive acts of *competitor derogation* intend to decrease the mate value of a same-sex rival relative to oneself (Buss & Dedden, 1990; Schmitt & Buss, 1996). Competitor derogation is intended to cause harm to a rival, specifically by tarnishing the rival's reputation and decreasing their desirability as a mate. Thus, these behaviors are often viewed as aggressive intrasexual competition tactics (Vaillancourt, 2013).

### Social Comparison and Intrasexual Aggression

Estimates suggest that approximately 85% of peer aggression occurs between same-sex conspecifics (Gallup et al., 2009). These aggressive behaviors are often displayed in two distinct forms that are sometimes differentially employed between the two sexes (Björkqvist, 1994; Björkqvist et al., 1992). Direct aggression refers to aggressive behaviors that are carried out in an overt, face-to-face manner, with the intention to threaten or inflict physical or verbal harm upon another person (Richardson & Green, 2006). Individuals may seek to employ directly aggressive tactics through acts such as yelling or insulting, threatening, physically striking, pushing, or using a weapon against another person (Björkqvist et al., 1992; Green et al., 1996). Past research has shown that men tend

to employ tactics of direct aggression more than women (Campbell, 2006).

Conversely, girls and women engage in proportionally more indirect aggression (Björkqvist et al., 1992; Österman et al., 1998), although some researchers have highlighted a lack of an overall sex difference (see Wyckoff & Kirkpatrick, 2016 for review). The perpetration of indirect aggression is often used to manipulate the reputation of same-sex rivals, decreasing the other's status or mate value relative to one's own (Vaillancourt, 2013). Indirect aggression also allows for the widespread surreptitious sharing of negative information about same-sex competitors, often while disguising the identity of the perpetrator and reducing the likelihood of retaliation from rivals (Björkqvist et al., 1992; Davis et al., 2018; Reynolds et al., 2018). Indirect aggression may involve getting others to dislike someone in their social circle, purposely excluding or ignoring others, and spreading negative gossip about a rival (Archer & Coyne, 2005; Björkqvist et al., 1992; Vaillancourt, 2013). Indeed, previous literature has documented that women prefer to use gossip as a means to aggress against same-sex competitors (Davis et al., 2019; McAndrew, 2014), and that intrasexual competitiveness positively predicted women's tendency to gossip (Davis et al., 2018). When asked to report how they would respond to a false accusation made by a same-sex peer, women were more likely to respond by attacking the rival's reputation, compared to men (Hess & Hagen, 2006).

Some research has shown that women exposed to images of physically idealized models in advertisements report increased indirect aggression (Borau & Bonnefon, 2019). Moreover, research suggests that women's aggression toward other women is not indiscriminate, but rather is targeted toward the most attractive or sexualized women. Arnocky et al. (2012) showed that women who made less frequent attractiveness comparisons and perceived themselves as being more attractive than other women reported a greater frequency of indirect victimization by other women (see also Leenaars et al., 2008). Other research has shown that women were also more inclined to show a dislike toward attractive women, especially when men conversed with and paid greater attention to the more attractive rival (Baenninger et al., 1993). Beyond attractiveness, Vaillancourt and Sharma (2011) demonstrated that in the presence of a provocatively dressed confederate, women were more likely to engage in indirectly aggressive behaviors such as rolling their eyes, staring at her without emotion, laughing at her when she left the room, and criticizing her appearance and sexual availability compared to when the confederate was dressed conservatively. This finding was recently replicated using a more overt behavioral measure of aggression (Arnocky et al., 2019).

## The Mediating Role of Envy

It is important to consider the role of relevant emotions in mediating the potential link between appearance comparison and aggression. Darwin (1871) suggested that emotions facilitate an organized response to environmental stimuli, which prepares individuals to take necessary action. Evolutionary scholars have suggested that emotions solve domain-specific adaptive problems routinely encountered in our ancestral environment (Cosmides & Tooby, 2000; Nesse, 1990). Thus, when individuals find themselves in the face of an adaptive challenge or threat, emotions function as an outward representation of the evolved mind's understanding of which behavior(s), elicited by a particular emotion, will achieve the most desirable outcome or goal (Cosmides & Tooby, 2000).

Using this framework, Hill and Buss (2008) argued that envy should motivate behavioral responses to unfavorable social comparisons on important mate value domains. Among women, envy is elicited in situations where they feel threatened by the physical attractiveness of other women (DelPriore et al., 2012; Hill & Buss, 2006). Hill and Buss (2006) demonstrated that compared to men, women prefer to be relatively more attractive than their peers (a positional bias), even if it means their absolute level of attractiveness is lower. Women, more than men, also felt more envious when one of their same-sex peers became noticeably more physically attractive than themselves (Hill & Buss, 2006). Hill et al. (2011) found that envy elicited by targets promotes greater attention and memory for those targets, suggesting a potential feedback loop whereby comparisons are made more frequent or easily via experienced envy.

Arnocky et al. (2016) demonstrated support for the motivational role of envy using a mediation model whereby making unfavorable appearance comparisons increased envy in women, which in turn predicted more positive attitudes and intentions toward physical appearance enhancement including cosmetic surgery, and cosmetics and diet pill use (i.e., self-promotion tactics; Arnocky et al., 2016).

Beyond efforts aimed at enhancing one's own attractiveness (self-promotion), envy might also be complicit in motivating aggressive efforts to reduce the mate value of intrasexual rivals (competitor derogation). Indeed, previous research has highlighted a link between envy and aggression (Cohen-Charash, 2009; Smith & Kim, 2007). For instance, among university employees, envy about one's job and status in the workplace is among the most reported reasons for harassment, which women experience at a significantly higher rate compared to men (Björkqvist et al., 1994). Similarly, those with higher envy scores are more likely to engage in indirectly harmful and counterproductive behaviors

toward coworkers including talking negatively about someone to their coworkers, backstabbing someone, and creating workplace coalitions against a fellow employee, which align with the definition of indirect aggression (Cohen-Charash & Mueller, 2007).

## The Present Research

The present study tests the hypotheses (1) that women's upward appearance comparison will predict more aggression toward an attractive intrasexual rival, and (2) that envy will mediate this link. We used an experimental forced appearance comparison task (versus a non-comparison control condition) to induce group differences in upward appearance comparison (Tiggemann & McGill, 2004). The appearance comparison task involves viewing advertisements containing an attractive and provocatively dressed model and being asked to compare one's physical appearance to hers (versus a product-only control condition). Recent research has linked viewing similar advertisements to indirect aggression in women (Borau & Bonnefon, 2019). Therefore, we examined willingness to spread negative gossip about an attractive female who has just joined one's social group. Willingness to spread positive gossip about the intrasexual rival was also included as a control variable in the model.

## Method

To determine an appropriate a priori sample size for mediation analyses, we followed guidelines set forth by Fritz and MacKinnon (2007). This revealed a requisite sample of 115 to achieve 0.8 power with anticipated large effect for the X-M path ( $\alpha=0.59$ ) and a small-medium effect for the M-Y path ( $\beta=0.26$ , bias-corrected confidence intervals). Anticipated effect sizes were based on previous research examining envy as a mediating variable between social comparisons and other forms of intrasexually competitive behavior (e.g., appearance enhancement; Arnocky et al., 2016). Participants were 217 Canadian and American women recruited using Amazon's Mechanical Turk. A total of 35 participants were removed for having a duplicate IP address, for failing an attention check embedded in the survey, or for identifying that we were attempting to manipulate perceptions of appearances of other women when asked what they felt the purpose of the study was. The final sample thus comprised 182 women aged 18 to 39 ( $M=27.85$ ,  $SD=4.21$ ), with 92 assigned to the appearance comparison condition, and 90 assigned to the control (product only) condition. Participants were instructed that as part of a marketing study about magazine advertisement efficacy, they would view a set of five ads and subsequently answer questions

about each, along with a follow-up survey on social preferences and behaviors.

## Materials

**Physical Appearance Comparison Priming Task** Women were randomly assigned to one of two experimental conditions: viewing a series of five advertisements prominently featuring a female model (appearance comparison condition), or advertisements from the same companies that featured the product only (control condition). In the appearance comparison condition, two ads featured a woman in a bikini, and one featured a woman wearing a bra and underwear. Two of these ads were from clothing companies advertising the bikini or underwear, and one was for a hamburger restaurant in which the model is eating a hamburger on a beach. One featured a rear-facing model with her buttocks visible (a car ad without a car), and one featured a nude woman laying supine with breasts and genitals covered in beer bottle caps (for a beer company). The control ads featured either a collage of photos of individuals wearing a brand of clothes, a stiletto shoe, a car, a hamburger, or a beer bottle, respectively. Each of the five ads was viewed for 30 seconds. Following each ad, participants in the control condition responded to five survey items using a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*): "If I saw this ad in a magazine, it would catch my eye," "I like the layout of this ad," "This ad makes me interested in the product," "This ad is creative," and "This ad is effective in promoting its product." In the appearance comparison condition, two of the items were retained from the control condition ("I like the layout of this ad" and "This ad is effective in promoting its product"), and the remaining three items prompted appearance comparison with the model: "I would like my body to look like this woman's body," "This woman is thinner or prettier than me," and "In a busy clothing store, I would not like to try on bikinis in the same room as this woman if she were also trying on bikinis" (Tiggemann & McGill, 2004). Previous studies have shown that this design is effective in inducing between-group differences in physical appearance comparisons in women (Arnocky et al., 2016; Tiggemann & McGill, 2004).

Two manipulation check items: "To what extent did you think about your appearance when viewing the magazine advertisements?" and "To what extent did you compare your physical appearance to other women when viewing the magazine advertisements?" were scored using a 7-point Likert-type scale ranging from 1 = *not at all* to 7 = *a great deal*. Women in the comparison condition both compared their appearance to other women ( $M_{compare} = 5.32$ ,  $M_{control} = 2.98$ ,  $t(180) = 8.36$ ,  $p < 0.001$ ) and thought about their own appearance ( $M_{compare} = 5.37$ ,

$M_{control} = 3.26$ ,  $t(180) = 7.57$ ,  $p < 0.001$ ) more than women in the control condition.

**State Envy** State envy was then assessed by asking participants the degree to which they felt “envious,” “hostile,” “inferior,” “longing for what another has,” “mediocre,” “motivation to improve,” “resentful,” “unlucky,” and “wishful” using a 7-point Likert-type scale ranging from 1 = *not at all* to 7 = *very much* (Hill et al., 2011). Participants’ responses to the items were averaged to create a state envy score which showed good internal consistency ( $\alpha = 0.94$ ).

**Gossip** Participants viewed a black and white image of an attractive woman wearing conservative clothing, alongside the following scenario based upon Reynolds et al. (2018): “This is Veronica. She just joined your social group. Imagine that you discovered these seven pieces of social information about Veronica. How likely would you be to share this information with someone else in your social group?” Participants then rated the likelihood of sharing four pieces of positive information and three pieces of negative information on a 7-point Likert-type scale ranging from 1 = *extremely unlikely* to 7 = *extremely likely*. The positive information items were “Her IQ classifies her as a genius,” “She donates to charity,” “She speaks four languages,” and “She has traveled around the world.” The three pieces of negative information were “She has an STD,” “She cheated on her last boyfriend,” and “She sleeps around a lot.” The positive ( $\alpha = 0.83$ ) and negative ( $\alpha = 0.89$ ) items each showed good internal consistency and were averaged to create positive and negative gossip subscales.

## Analytic Approach

We examined the relationship between appearance comparison condition and gossip (positive and negative). A bootstrapped mediation model (PROCESS, Model 4; Hayes,

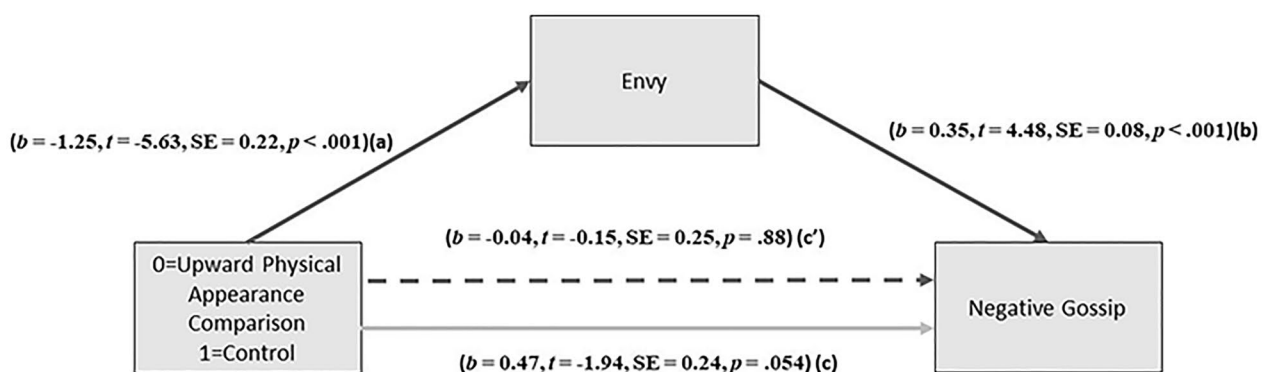
2013) as outlined by MacKinnon and colleagues (2002) was used to examine the role of intrasexual competition in mediating this relationship. For each analysis, 1000 bootstrapping samples were derived. Unstandardized regression coefficients are reported.

## Results

We first examined whether appearance comparison (0 = viewing attractive women, 1 = viewing products only) predicted negative gossip about the attractive female. Appearance comparison had a total (c-path) effect on negative gossip,  $b = -0.47$ ,  $SE = 0.24$ ,  $t = -1.94$ ,  $p = 0.054$ , such that women in the appearance comparison condition were more likely to gossip negatively about the attractive woman who had joined their friendship group. Results also demonstrated that appearance comparison predicted higher state envy following the prime,  $b = -1.25$ ,  $SE = 0.22$ ,  $t = -5.63$ ,  $p < 0.001$ .

With envy included in the model, the direct (c’ path) effect of appearance comparison on negative gossip was reduced to statistical non-significance,  $b = -0.04$ ,  $SE = 0.25$ ,  $t = -0.15$ ,  $p = 0.88$ . Envy had a direct (b path) effect on negative gossip,  $b = 0.35$ ,  $SE = 0.08$ ,  $t = 4.48$ ,  $p < 0.001$ , such that more envious women reported that they would be more likely to engage in negative gossip. Envy mediated the link between appearance comparison and negative gossip (bootstrapping: 95% LL =  $-0.72$ , 95% UL =  $-0.20$ ) (Fig. 1). The mediation model contributed 12% toward explained variance in negative gossip.

We reran the model this time examining positive gossip as the dependent variable. Results showed that appearance comparison condition was marginally related to spreading positive gossip,  $b = -0.32$ ,  $SE = 0.17$ ,  $t = -1.82$ ,  $p = 0.07$ . With envy included in the model, neither appearance comparison,  $b = -0.31$ ,  $SE = 0.19$ ,  $t = -1.64$ ,  $p = 0.10$ , or envy,



**Fig. 1** Envy mediated the link between appearance comparison and negative gossip

$b = 0.01$ ,  $SE = 0.06$ ,  $t = 0.07$   $p = 0.94$ , predicted positive gossip. Envy did not mediate the path between appearance comparison and positive gossip, (bootstrapping: 95% LL =  $-0.14$ , 95% UL =  $0.16$ ), and the model accounted for only 1.8% of explained variance in positive gossip.

## Discussion

It has been hypothesized that humans evolved social comparison mechanisms to determine where they stand on important mate value characteristics. From this perspective, experienced negative emotion, such as envy in response to unfavorable comparisons, performs the adaptive function of motivating intrasexually competitive behavior in response to these unfavorable social comparisons (see Arnocky et al., 2012; DelPriore et al., 2012). This proposition maps on to broader theories that focus on the role that emotions play in motivating responses to adaptive threats that may affect an individual's own reproductive success (Arnocky et al., 2015) and corresponds with previous research linking upward social comparison to both state and trait envy (Arnocky et al., 2016).

The present research focused on women's appearance comparisons because physical attractiveness is a key determinant of female mate value (Buss & Schmitt, 1993). Women who make more frequent upward (unfavorable) appearance comparisons display more intrasexual competitiveness (Arnocky & Piché, 2014) and attempts at making oneself more competitive in the mating market via behaviors such as obtaining cosmetic surgery, desire to lose weight, and skin tanning (Arnocky & Piché, 2014; Arnocky et al., 2016). Moreover, previous literature has found that envy mediates the link between women's social comparison and appearance-enhancement behavior such as willingness to use a risky diet pill, intended use of facial cosmetics, and positive attitudes toward cosmetic surgery (Arnocky et al., 2016). In this study, this model was extended to determine if envy mediates the link between upward appearance comparison and women's intrasexual gossip. Results supported the tested model, demonstrating that envy mediated links between upward appearance comparison and negative gossip about an attractive rival, but not for positive gossip.

Previous research has shown that attractive women (Arnocky et al., 2012; Leenaars et al., 2008) and women perceived as being sexually available (such as those dressed in a sexualized manner; Arnocky et al., 2019; Vaillancourt & Sharma, 2011) are more likely to be aggressed against by their peers compared to less attractive or less sexualized women. This is unsurprising given the finding that physically attractive and sexually available women are a threat to other women's reproductive fitness. For instance, attractive women report greater success in stealing other

women's partners (Sunderani et al., 2013), and women with highersociosexual orientations demonstrate a greater preference for dressing in a more sexualized manner during ovulation (Durante et al., 2008). Considering the associated risk of aggression (Buss & Shackelford, 1997) which is amplified among females (see Björkqvist, 1994; Campbell, 2004; Vaillancourt, 2013), it makes sense that aggression would be preferentially rather than indiscriminately enacted upon specific targets. The results of this study also provide support for the argument that gossiping is an intrasexual competition tactic (Davis et al., 2018). Our finding aligns with that of Cohen-Charash and Mueller (2007) who demonstrated those with higher envy scores were more likely to engage in indirectly harmful and counterproductive behaviors toward coworkers including talking negatively about someone to their coworkers, backstabbing someone, and creating workplace coalitions against a fellow employee.

This study was focused specifically on gossip toward another woman, but it is possible that women's aggression could also extend to aggression against male partners. For instance, recent evidence suggests that intrasexual competition predicts women holding more lenient views on men being victimized by women using revenge pornography (Fido et al., 2021). Future work should also consider the role of other emotions that also mediate aggressive responses to unfavorable appearance comparisons. Jealousy has been shown to mediate links between unfavorable social comparisons and women's indirect aggression, which can include gossip, toward partners and peers (Arnocky et al., 2012). Both emotions also appear fundamentally intertwined with anxiety, which itself has been linked to anticipated partner infidelity (in men) (Arnocky et al., 2015). Perhaps envy may play a larger role in general intrasexual rivalry, whereas anxiety and jealousy may play a greater role in aggressive mate retention. Future work should aim to determine whether envy, jealousy, and/or anxiety mediate potential links between women's upward appearance comparisons and mate retention effort, including aggressive acts perpetrated against men.

It is important to note that despite our focus on women, our study does not discount the mediating role of envy between men's upward appearance comparison and their gossip. For instance, relative to women, men tend to experience greater envy toward same-sex rivals over status, athleticism and physical fitness, resources, and sexual access to mates (DelPriore et al., 2012; Pila et al., 2014). Pila et al. (2014) showed that men often experience envy after making body comparisons against their physically fit competitors, some of whom stated that these comparisons further motivated them to improve their own physique. Males also have been shown to engage in gossip in ways that are characteristically different from females (Davis et al., 2018). For instance, Buss and Dedden (1990) found that men, relative

to women, were more likely to derogate the financial standing, achievements, and strength of same-sex rivals. Men gossip about achievements more than women (Davis et al., 2018; Nevo et al., 1993; Watson, 2012), and recall for gossip about status and wealth is more accurately recalled when paired with male versus female targets (De Backer et al., 2007).

There is some circumstantial evidence that social comparison on relevant mate value traits might impact men's intrasexual aggression more broadly. Bird et al. (2016) found that priming men with low mate value using a bogus "mate value calculator" predicted subsequent aggression toward other men. Specifically, men were randomly assigned to receive high or low mate value feedback after providing a facial photo and survey responses on items like status and income under the guise that the software was designed to determine composite relative mate value compared to other men for matching purposes on a popular online dating website. Men assigned to receive low mate value information about themselves were more aggressive toward a hypothetical mate poacher (Study 1) and toward other men in a point-subtraction aggression task (Study 2), especially if they were also high in trait narcissism. Future research may benefit from examining more directly whether men's social comparison on important mate value attributes (i.e., status, athleticism, resources) elicits envy, and increases their use of intrasexual gossip.

Another limitation of this, and previous work on appearance comparison is the focus on upward (unfavorable) comparisons made toward perceived more attractive rivals. Yet, there is contradictory evidence that might suggest downward comparisons are also complicit in intrasexual competition. For example, Chaudhary et al. (2018) found that self-perceived mate value, which likely includes comparing one's standing to others, predicted both greater competitor derogation and more mate retention effort. From this perspective, it could be that a more general tendency toward making either upward or downward social comparisons is what predicts greater intrasexual rivalry, rather than it necessarily being lower perceived relative standing that drives competition. Future research could address this by priming both upward and downward comparisons and examining aggressive intent or behavior thereafter.

## Limitations

There are some limitations worth noting. First, this study was conducted using an online North American sample, most of whom identified as Caucasian. Therefore, the sample used in this study may limit the generalizability of our findings, as well as any arguments that can be made from a cross-cultural perspective. Another limitation of this

research was our sole focus on young women with an average age of 27. However, due to the fact that males, more than females, place greater value on a partner's physical attractiveness (e.g., Buss, 1989; Shackelford et al., 2005; Sprecher et al., 1994), using a sample of young, heterosexual women also reflects our ideal demographic for this particular study. For instance, similar to past studies (Arnocky et al., 2016; Campbell, 2004; Vaillancourt, 2013), our research also highlights that young women tend to compete more fiercely for mating opportunities. Moreover, some research has found that younger women are more likely to experience both benign and malicious envy (Lange & Crusius, 2015). Henniger and Harris (2015) suggest that the emotional experience of envy tends to decrease in older age, and therefore, using a younger sample of women was once again a better demographic fit.

Finally, although the use of an experimental priming design allows for greater control of extraneous variables and a better test of directional predictions, it simultaneously reduced the ability to make inferences about the potential influence of trait, rather than state, operation of both appearance comparison and envy. Moreover, the use of an *in vivo* measure of gossip intent ostensibly confers lower ecological validity than a measure of reported gossip behavior. Accordingly, we have appended to this manuscript two supplemental cross-sectional survey studies replicating the mediation model tested herein using samples of undergraduate women. Specifically, women who made more frequent upward appearance comparisons engaged in more gossip behavior (Supplemental Study 1) and more indirect aggression toward other women (Supplemental Study 2), and these links were each mediated by dispositional envy (see [online supplement](#)).

## Conclusion

Recent research has demonstrated that envy, elicited by unfavorable appearance comparisons, motivates women to engage in appearance-enhancement behaviors (Arnocky et al., 2016). The present study extended these findings by examining the mediating role of envy between women's upward appearance comparison and their willingness to spread negative gossip about an attractive rival. The results of this study suggest that upward appearance comparisons predict greater envy, which in turn predicts more negative gossip toward an intrasexual rival. These findings provide empirical evidence to support the hypothesis that envy is an adaptive psychological mechanism that promotes compensatory behavior considering unfavorable social comparisons on important mate value traits.

**Supplementary Information** The online version contains supplementary material available at <https://doi.org/10.1007/s40806-021-00298-6>.

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**Availability of Data and Material** Not applicable.

**Code Availability** Not applicable.

## Declarations

**Ethics Approval** Approved by Nipissing University Research Ethics Board protocol #102627.

**Consent to Participate** Participants provided digital informed consent.

**Consent for Publication** Participant information letter notified participants that the resulting manuscript would be submitted for publication.

**Conflict of Interest** The authors declare no competing interests.

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