



Sex differences in cognitive and moral appraisals of infidelity: Evidence from an experimental survey of reactions to the petraeus affair

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ABSTRACT

We investigated sex differences in cognitive and moral appraisals of sexual infidelity using the case of General David Petraeus as an example. Because visual stimulation may impact psychological evaluations of other people's behavior, including infidelity, participants were randomly assigned to view either a photograph ($n = 127$) of General Petraeus with his wife plus a photograph of him with his mistress, or a photograph ($n = 195$) of General Petraeus alone. Both conditions included an identical brief description of the scandal following his affair with his biographer. Participants provided their moral appraisal and cognitive appraisal of infidelity after viewing the visual stimuli. As predicted, men more than women reported lower scores of moral appraisal (“condemnation”) and higher scores of cognitive appraisal (“understanding”) across both conditions. Men who viewed photographs of General Petraeus with his wife and with his mistress reported higher cognitive appraisal than did men who viewed a photograph depicting General Petraeus alone. These results suggest sex differences in appraisals of infidelity, which are particularly salient when participants are presented with visual stimuli contrasting the wife and the more attractive mistress of the unfaithful man.

1. Sex differences in cognitive and moral appraisals of infidelity

Evidence from an Experimental Survey of Reactions to the Petraeus Affair Infidelity affects many intimate relationships and can cause significant distress (e.g., Cano & O’Leary, 2000). Although there are multiple configurations of infidelity (Blow & Hartnett, 2005), one is particularly recurrent: Older, socially and financially well-established married men pursuing extramarital affairs with young, attractive women; and especially with women younger and more attractive than their spouses (Buss, 2015). This specific type of infidelity is the most common source of high-profile political sex scandals, with several dozen heavily-reported cases in the last two decades in the US (Downey & Stanyer, 2013). Because the occurrence of morally dubious behaviors by elected officials and political appointees erodes trust in the government (Miller, 1999), there is a need to investigate the factors that affect how the public perceives and responds to infidelity by powerful men.

Previous research has identified several factors that influence reactions to extramarital affairs involving an older politically powerful man and a young woman, who typically occupies a subordinate

position. Wiid, Pitt, and Engstrom (2011) reported that public reactions and sentiments toward politicians’ involvement in a scandal depend on what the scandal was about, where it occurred, what happened, who the protagonists in the conflict were, and who was perceived to be the loser in the story. However, these researchers focused on the characteristics of an affair, and did not investigate *individual differences* that may affect reactions to a political sex scandal.

One individual difference that may affect reactions to this type of infidelity is *empathy*. For example, the more empathy people report for an unfaithful person, the more forgiving they may be of an infidelity (empathy is strongly and positively associated with forgiveness; Davis & Gold, 2011). Individuals may react empathically towards an unfaithful person, for example, by taking his or her perspective (i.e., cognitive appraisal), or by showing an affective response towards his or her behavior (i.e., moral appraisal). As these two components of empathy have been shown to be relatively independent (Bzdok et al., 2012; Smith, 2006), individuals may express them differently. For example, a person may morally condemn but cognitively “understand” an extramarital affair. Previous research addressing perceptions of high-profile sex scandals has not investigated the role of empathy.

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Moreover, the sex of the person judging this type of infidelity may also affect reactions to it. Men report greater upset than do women in response to a partner's *sexual* infidelity (Buss, Larsen, Westen, & Semmelroth, 1992), whereas women report greater upset than do men in response to a partner's *emotional* infidelity (Shackelford, LeBlanc, & Drass, 2000). Because men and women differ in their perceptions of infidelity, they may react differently to a male politician or other male public figure engaged in an extramarital affair with a younger woman. To our knowledge, no previous research has addressed this hypothesis.

In addition, individuals may react to an extramarital affair differently if they are (vs. are not) presented a *visual stimulus* of the affair (e.g., pictures of the mistress). Men and women display distinct brain activations during imagery of sexual and emotional infidelity (Takahashi et al., 2006). Visual (vs. imagined) stimuli of infidelity produce greater distress in men than in women (Landolfi, Geher, & Andrews, 2007). Women also rate men's desirability as a long-term partner differently as a function of the stimuli presented (e.g., women rate as less desirable male facial pictures associated vs. not associated with excitement values, a class of values linked with infidelity; Lopes, Santos, Shackelford, Tratner, & Gouveia, 2017). Men and women may therefore react differently to political extramarital affairs involving an older man and a younger woman depending on several factors, including whether they have access to visual images of the wife and the mistress. No previous research has investigated whether access to visual stimuli of the people involved affects perceptions of a high-profile sex scandal.

The current study investigates whether and how sex (male, female) and exposure to visual stimuli of the unfaithful husband, the wife, and the mistress affect expressions of different components of empathy for the unfaithful husband involved in a political sex scandal. We use data from an experimental survey asking participants to respond to questions about a widely publicized scandal involving General David Petraeus—a four-star general in the US Army. He became well-known for his role as the commander of the multinational force during the 2007-2008 “surge” phase of the Iraq War. Following his meritorious military career, General Petraeus served as the Director of the Central Intelligence Agency (CIA) until news about his extramarital affair with his biographer, Paula Broadwell, forced his resignation in 2012. At the time, Mrs. Broadwell was 40 years old, 20 years younger than General Petraeus and his wife.

1.1. Sex differences in expressions of empathy for General Petraeus's infidelity

Empathy, defined as the capacity to relate to the feelings expressed by others (Decety & Cowell, 2014), consists of two components: (1) *moral appraisal*, a morally-driven, affective response to another person's behaviors, and (2) *cognitive appraisal*, the cognitive capacity to take the perspective of another person (Bzdok et al., 2012; Smith, 2006). The cognitive component of empathy enables people to understand and predict the behavior of others in terms of attributed mental states (Lamm, Batson, & Decety, 2007; Smith, 2006). It also facilitates prosociality towards peers (Decety & Cowell, 2014). The moral component of empathy motivates people to behave altruistically towards kin, mates, and allies (Davis, 1994), and may inhibit antisocial behaviors, such as infidelity (Hoffman, 1987).

Over human evolutionary history, sex differences in the costs and benefits of long-term mating may have led to sex-differentiated expressions of empathy for extramarital affairs. For example, the benefits of long-term mating for ancestral men included an increase in the certainty that a man is genetically related to his partner's child (Buss & Shackelford, 1997). Men in a long-term relationship typically benefit from greater paternity certainty at the cost of alternative mating opportunities. Infidelity is one strategy men may use to secure paternity certainty while also gaining access to alternative mating opportunities. On the other hand, women prioritize cues of resource acquisition in

men (Buss, 2016), and cues of resource acquisition are related to valued psychological and social characteristics, such as social status (Buss & Schmidt, 1993), earning potential (Buss, 1989), and willingness to invest in children (Brase, Adair, & Monk, 2014). A partner's infidelity is therefore costly to women, because they risk losing partner-provisioned resources (Buss, 2015).

Because infidelity with a younger woman is beneficial from a man's perspective (i.e., he benefits from increased paternity certainty and alternative mating opportunities) and costly from a woman's perspective (i.e., she risks losing her partner's resource provisioning), men and women may differ in their expressions of empathy for others' infidelities. Specifically, men (relative to women) may express more understanding and less moral condemnation for a male public figure who is unfaithful with a younger woman. We therefore hypothesize that men (vs. women) will report more understanding (cognitive appraisal; Hypothesis 1) and less moral condemnation (moral appraisal; Hypothesis 2) for General Petraeus's infidelity.

1.2. Sex differences in empathy after visualization of General Petraeus's wife and mistress

Men and women respond differently to visual stimuli, especially if these stimuli are related to sexual affairs (Laumann, Gagnon, Michael, & Michaels, 1994). For example, visual (vs. imagined) stimuli of infidelity produce greater psychological distress for both sexes, but more so for men than women (Landolfi et al., 2007). When viewing pictures of threat, mutilation, and erotica, women (relative to men) respond with greater defensive reactivity (Bradley, Codispoti, Sabatinelli, & Lang, 2001). Additionally, men's amygdalae and hypothalami become more strongly activated than women's when viewing identical sexual stimuli, even when women report greater arousal than do men (Hamann, Herman, Nolan, & Wallen, 2004). Previous findings of sex differences in reactions to visual stimuli therefore suggest that men are more interested in, and responsive to, visual stimuli regarding sexual affairs (e.g., Herz & Cahill, 1997; Laumann et al., 1994). Thus, neurological activation may represent the proximate mechanisms regulating adaptations to the recurrent adaptive problem of infidelity.

Because infidelity with a younger woman would have been ancestrally beneficial from a man's perspective, and because visual (vs. imagined) stimuli of infidelity produce greater reactions in men than in women (e.g., Landolfi et al., 2007), we expect men who have (vs. do not have) access to visual depictions of General Petraeus's wife and mistress to perceive the benefits of infidelity to a greater extent, and thus report more cognitive understanding and less moral condemnation for General Petraeus. We therefore hypothesize that men who view pictures of General Petraeus with his wife and with his mistress will report more understanding (cognitive appraisal; Hypothesis 3) and less moral condemnation (moral appraisal; Hypothesis 4) for General Petraeus than men who view a picture of General Petraeus alone.

In summary, the current study investigates differences in the moral and cognitive components of empathy for General Petraeus's extramarital affair, by employing a 2 (sex of participant: male, female) × 2 [visual stimulus: neutral (General Petraeus alone) vs. contrast (General Petraeus's wife and mistress)] factorial design.

2. Methods

2.1. Participants and procedure

We used data from a survey administered in late November, 2012, soon after General Petraeus resigned. The survey was administered on two different campuses of a Midwestern university system. The respondents were undergraduate and graduate students in criminal justice classes. Among the 12 participating classes, six were randomly selected into the treatment group, while the remaining six classes served as the control group. Because one of the classes in the control

Table 1
Descriptive statistics of participants ($n = 322$).

| | Mean/% | Min | Max | N | Percent Missing |
|--------------------------------|-----------------|-----|-----|-----|-----------------|
| Treatment Group, % | | 0 | 1 | | |
| Treatment Group | 39.44% | | | 127 | 0.31% |
| Control Group | 60.56% | | | 195 | |
| Moral Appraisal, mean (SD) | 18.60 (3.33) | 5 | 23 | 313 | 3.10% |
| Cognitive Appraisal, mean (SD) | 9.69 (2.41) | 3 | 15 | 314 | 2.79% |
| Age, mean (SD) | 21.94 (3.82) | 18 | 43 | 322 | 0.31% |
| Sex, % | | 0 | 1 | | 0.31% |
| Female | 43.79% | | | 141 | |
| Male | 56.21% | | | 181 | |
| Graduate Student Status, % | | 0 | 1 | | 0.31% |
| Undergraduate Student | 94.72% | | | 305 | |
| Graduate Student | 5.28% | | | 17 | |
| Military Service, % | | 0 | 1 | | 0.62% |
| No Military Service | 89.72% | | | 288 | |
| Military Service | 10.28% | | | 33 | |

group was exceptionally large, the total number of respondents in that group ($n = 195$, 60.6%) was larger than in the treatment group ($n = 127$, 39.4%). Table 1 provides additional descriptive data about the participants.

For both sets of participants, survey administration was preceded by a brief description of the General Petraeus scandal; explaining who he was, what he had done (the affair), and his decision to resign. In the treatment group, this description was read while viewing two images on the classroom screen: one featuring General Petraeus standing next to his wife, and the other showing him next to his mistress. Various media outlets described the physical appearance of Paula Broadwell as “toned” (Bankoff, 2012) and “very attractive” (Kaplan, 2012) in contrast to Holly Petraeus as “ordinary” and “frumpy” (Daum, 2012) in appearance. The treatment condition highlighted the contrast in the physical attractiveness of the mistress and the wife. The visual stimulus for the control group featured an official photo of General Petraeus alone. Following the otherwise identical description of the scandal, participants responded to the survey in the classroom.

2.2. Measures

Moral appraisal was assessed using five items indicating agreement (5-point Likert scale) with the following claims: (1) “It is always wrong to cheat on your wife”, (2) “What General Petraeus did was despicable”, (3) “I don’t blame General Petraeus for having an affair”, (4) “General Petraeus was a victim of his circumstances”, and (5) “It is unrealistic to expect powerful men to remain faithful”. The last three items (3-5) were reverse coded in order for high scores to indicate strong moral condemnation ($\alpha = 0.70$).

Cognitive appraisal of the extramarital affair was assessed with a scale ($\alpha = 0.65$) consisting of three items indicating agreement with the following claims: (1) “Men cheat because they want to have sex with attractive women”, (2) “Men are less likely to cheat if they are attracted to their wives”, and (3) “Men cheat because they are unhappy with their sex lives”. The scale was coded such that a high score indicates greater agreement with the statements. Thus, individuals who scored high on this measure viewed infidelity by men as a pursuit of sexual satisfaction in the presence of an unfulfilling sexual relationship. Although they may consider extramarital affairs immoral, they nevertheless express *cognitive empathy* for this behavior, i.e., they “understand” why it happens.

For the treatment condition, the relevant variable was coded “1” for those presented with the visual contrast between the wife and the

mistress, and “0” otherwise. *Control variables* were included because the treatment was randomized by class but not by participant. We considered four individual-level variables as possible confounders: age (in years), sex (1 = female, 2 = male; also a moderator variable), student status (1 = undergraduate, 2 = graduate), and military service (1 = no, 2 = yes; indicates either prior or current service). All control measures were self-reported by participants.

3. Results

Prior to conducting the primary analysis, we conducted balance tests to examine the extent to which the randomization procedures were successful. We estimated a binary logistic regression model in which the treatment indicator was regressed on the statistical covariates. Means comparison tests were used to examine sex differences in moral and cognitive appraisal. Because the hypotheses are directional, we performed single-tailed tests of statistical significance. We used t -tests for the continuous measures and Chi-square tests for the binary measures. Effect sizes were estimated using guidelines proposed by Ferguson (2009), with Cohen’s d used for t -tests and odds ratios used for Chi-square tests.

3.1. Univariate statistics

Table 1 presents descriptive statistics for the analytic variables. The first row shows that, as noted above, due to one very large class participating in the control group, this category included more participants (60.56%) than the treatment group (39.44%). The next two rows of Table 1 present the mean scores and standard deviations of the moral and cognitive appraisal scales, respectively. As the last column indicates, missing values in the two scales were negligible. Participants were approximately 22 years old, but note that this statistic is affected by the inclusion of one graduate-level class in the experiment. Close to 95% percent of the respondents were undergraduate students, and about one in 10 participants had served in the military.

3.2. Balance test

The results of the logistic regression model examining balance between the treatment and control groups are presented in Table 2. The results revealed that, with one exception, the associations between group assignment and the examined covariates were not statistically significant, indicating that the randomization was successful. The exception to these findings is for the graduate student indicator ($b = 3.66$, 95% CI = 1.56-5.76) which indicates that graduate students were more likely to be assigned to the treatment group than were undergraduate students. In light of these results, a series of supplemental multivariate linear regression models were estimated, wherein graduate student status was included as a control. The results of the supplemental models (not presented, but available upon request) did not alter the pattern of results reported in the primary analysis.

Table 2

Results from binary logistic regression model examining balance between treatment and control groups.

| | b | 95% CI |
|-------------------------|--------|-------------|
| Age | -0.05 | -0.12; 0.02 |
| Sex | -0.30 | -0.78; 0.18 |
| Graduate Student Status | 3.66** | 1.56; 5.76 |
| Military Service | -0.21 | -1.02; 0.61 |
| Intercept | .95 | -0.76; 2.66 |

Note: Covariates were regressed on the treatment indicator. Coefficients represent unstandardized logistic regression coefficients.** $p < .001$; * $p < 0.05$

Table 3
Sex differences in moral and cognitive appraisal.

| | Males | Females | td | Effect Size (Cohen's d) |
|--------------------------------|--------------|--------------|---------------|--------------------------|
| Moral Appraisal, mean (SD) | 18.14 (3.63) | 19.18 (2.82) | 2.77(311)*** | .32 |
| Cognitive Appraisal, mean (SD) | 10.27 (2.30) | 8.93 (2.36) | -5.05(312)*** | -0.58 |
| Age, mean (SD) | 21.78 (3.38) | 22.14 (4.31) | 0.85(320) | .10 |
| | Males | Females | x2(df) | Effect Size (Odds Ratio) |
| Graduate Student Status, % | | | | |
| Undergraduate Student | 96.69% | 92.20% | 3.19(1)* | .41 |
| Graduate Student | 3.31% | 7.80% | | |
| Military Service, % | | | | |
| No Military Service | 85.00% | 95.74% | 9.90(1)*** | 3.97 |
| Military Service | 15.00% | 4.26% | | |

Note: Means of continuous measures (i.e., moral appraisal, cognitive appraisal, and age) compared using *t*-tests and differences between dichotomous measures (i.e., graduate student status, military service indicator) assessed using Chi-square tests. Results reflect one-tailed tests. ***p* < .001; **p* < 0.05

3.3. Sex differences

Table 3 presents results pertaining to Hypotheses 1 and 2, which assume sex differences in moral and cognitive appraisal. Men (*M* = 18.14, *SD* = 3.63) reported lower average scores of moral appraisal than did women (*M* = 19.18, *SD* = 2.82; *t*(311) = 2.77, *p* = .006, *d* = 0.32), and higher scores of cognitive appraisal (*M* = 10.27, *SD* = 2.30) than did women (*M* = 8.93, *SD* = 2.36; *t*(312) = -5.05, *p* < .001, *d* = -0.58). Consistent with theoretical expectations, these results suggest that women condemn male infidelity more strongly than do men, and that men express more cognitive empathy for an unfaithful husband than do women. Men were more likely to have military experience than were women ($\chi^2(1) = 9.90, p = .002, OR = 3.97$) and to be an undergraduate student ($\chi^2(1) = 3.19, p = .074, OR = 0.41$), although the latter difference did not reach conventional levels of statistical significance.

3.4. The effect of visualization

Hypotheses 3 and 4 predicted that presenting a visual stimulus contrasting the physical appearance of General Petraeus' wife vs. his mistress would reduce moral condemnation and increase cognitive empathy among men. The results presented in Table 4 provide support for the latter assumption but not for the former. With respect to moral appraisal, the difference between the treatment and the control group among men (*t*(174) = 0.13, *p* = .897, *d* = 0.02), and women (*t*(135) = 0.53, *p* = .597, *d* = 0.09) was nonsignificant. However, the average cognitive appraisal score was greater for men in the treatment group than for men in the control group (*t*(175) = -1.82, *p* = .035, *d* = -0.28). Among women, presentation of the visual contrast decreased cognitive empathy, but the difference was nonsignificant (*t*(135) = 0.72, *p* = .762, *d* = 0.13).

Table 4
Sex differences in moral and cognitive appraisal across the treatment condition.

| | Males | | | | Females | | | |
|--------------------------------|--------------|--------------|-------------|--------------------------|--------------|--------------|-------------|--------------------------|
| | Treatment | Control | t(df) | Effect Size (Cohen's d) | Treatment | Control | t(df) | Effect Size (Cohen's d) |
| Moral Appraisal, mean (SD) | 18.10 (3.98) | 18.17 (3.39) | 0.13(174) | .02 | 19.02 (2.93) | 19.28 (2.75) | 0.53(135) | .09 |
| Cognitive Appraisal, mean (SD) | 10.64 (2.34) | 10.01 (2.24) | -1.82(175)* | -0.28 | 8.75 (2.42) | 9.05 (2.32) | 0.72(135) | .13 |
| Age, mean (SD) | 21.55 (2.52) | 21.93 (3.87) | 0.74(179) | .11 | 22.42 (4.78) | 21.98 (4.03) | -0.58(139) | .10 |
| | Treatment | Control | x2(df) | Effect Size (Odds Ratio) | Treatment | Control | x2(df) | Effect Size (Odds Ratio) |
| Graduate Student Status, % | | | | | | | | |
| Undergraduate Student | 93.24% | 99.07% | 4.63(1)** | 7.68 | 79.25% | 100.00% | 19.81(1)*** | - |
| Graduate Student | 6.76% | 0.93% | | | 20.75% | 0.00% | | |
| Military Service, % | | | | | | | | |
| No Military Service | 87.84% | 83.02% | 0.79(1) | .68 | 96.23% | 95.45% | 0.05(1) | .82 |
| Military Service | 12.16% | 16.98% | | | 3.77% | 4.55% | | |

Note: Means of continuous measures (i.e., moral appraisal, cognitive appraisal, and age) compared using *t*-tests and differences between dichotomous measures (i.e., graduate student status, military service indicator) assessed using Chi-square tests. Odds ratio for graduate student status within female subsample due to a lack of graduate students in the subsample. Results reflect one-tailed tests. ***p* < .001; **p* < 0.05

4. Discussion

The goal of the present study was to evaluate individuals' appraisals of infidelity, using a highly publicized case involving a prominent male public figure as an example. As expected, sex differences in empathy for infidelity emerged, and interacted with the presentation of visual stimuli of the individuals involved in the infidelity. Relative to women, men reported lower average scores of moral appraisal, indicating less condemnation of male infidelity, as well as higher average scores of cognitive appraisal, indicating more understanding and acceptance of male infidelity as a pursuit of sexual satisfaction in the presence of an unfulfilling sexual relationship. Simultaneously viewing photographs of both General Petraeus' wife and his mistress did not affect men's moral appraisal of infidelity, but did increase their cognitive appraisal. These results indicate that viewing a contrast between a physically attractive mistress and a less physically attractive wife may influence the degree to which men understand the actions of an unfaithful man. Men's judgment of infidelity may not be changed by comparing the mistress and wife, but their understanding of another man's unfaithfulness may increase if the mistress is more attractive than the wife. Importantly, however, the corresponding effect size for this association (*d* = -0.28) did not meet the minimum threshold specified by Ferguson (2009) to signify a "practically" significant effect, so it should be interpreted with caution. Despite this limitation, that the results concerning moral appraisal and cognitive appraisal of infidelity were different coheres with literature suggesting the relative independence in expression of these two components of empathy (Bzdok et al., 2012; Smith, 2006). It is worth noting the congruence of evaluations for female participants – viewing the wife and mistress of General Petraeus did not influence women's moral or cognitive appraisals of male infidelity.

The present study suggests avenues for future research, particularly regarding the evaluations of the perceived attributes of extra-pair vis-à-vis in-pair partners. Although it can be inferred that a contrast exists

between General Petraeus' wife and his mistress based on media accounts – descriptions of Paula Broadwell included “curvaceous” (McShane, 2012), “the attractive brunette with the expressive green eyes” (Dimond, 2012), and even direct comments on the disparity in physical attractiveness between the two (e.g., Daum, 2012) – the present study did not quantify participants' evaluations of these differences. For instance, men's perceptions of a mistress's attractiveness may moderate their acceptance of infidelity or mediate their moral appraisals of infidelity, but such interactions cannot be directly modeled with the current data. Subsequent research should attempt to measure directly the perceived discrepancy in physical attractiveness between in-pair and extra-pair sexual partners.

An additional limitation of the present research to draw such conclusions is related to the types of photographs used. Photographs (available upon request) were selected that depicted General Petraeus with his wife, and with his mistress. Although they were kept as similar as possible, both being official posed photographs with flags in the background, they could not be standardized to account for other variables such as posture and clothing. Most significantly, Paula Broadwell is posed directly facing the camera, but Holly Petraeus is slightly turned such that part of her face is obscured. Therefore, it is possible that Holly Petraeus' face may not have been salient enough to elicit a difference in response from the participants because it was not as easily discerned as Paula Broadwell's in the photograph. Further, because Paul Broadwell was facing the camera, her photograph may have been more “engaging” to participants. Therefore, we cannot state with certainty that perceptions of the contrast between Paula Broadwell and Holly Petraeus were solely due to discrepancies in physical attractiveness, and not pose in the photographs. Subsequent research may benefit from explicitly comparing the attractiveness of in-pair and extra-pair sexual partners using more standardized photographs to draw more conclusive results.

Age discrepancy between in-pair and extra-pair partners is likely a relevant characteristic for men's evaluations of male infidelity. The nearly 20-year age difference between General Petraeus' wife and mistress was detectable in the gray hair of Holly Petraeus in the photographs, but participants were not asked to provide their estimations of the ages of either. Further, large age discrepancies in a relationship (such as the 20-year age difference between General Petraeus and Paula Broadwell) often elicit a strong moral reaction (Sela et al., 2018). Therefore, an interesting follow-up study might compare evaluations of an affair with a large age discrepancy to evaluations of an affair with a small age discrepancy. Such comparisons might interact with the sex of the actors and the sex of the participants. Because men have a sexual preference for younger women closer to peak fecundity (early to mid-20 s, e.g., Kenrick & Keefe, 1992) and are typically mated to women slightly younger than they are (Buss, 1989), it might be expected that men would be more understanding of male infidelity in which the mistress is younger than the wife (i.e., having higher reproductive value).

Given the reproductive costs of cuckoldry (i.e., forgoing reproductive opportunities under the false assumption of paternal certainty), men have evolved psychological adaptations to discourage a partner's sexual infidelity (e.g., sexual jealousy; Daly, Wilson, & Weghorst, 1982). As mentioned, a partner's sexual infidelity is more upsetting for men than it is for women (e.g., Buss et al., 1992). Relative to women, men might therefore be expected to report lesser moral acceptance and cognitive understanding of female sexual infidelity – to include that of a public figure. Because men's resource control is important for women in evaluations of male attractiveness, and because resource control is associated with male age (Buss, 1989), women more than men might be expected to report greater cognitive understanding of female infidelity with a slightly older man, while reporting lesser moral appraisal than men – results similar to those for men in the present study. It is also likely that the visual presentation of a discrepancy in physical attractiveness or age between the in-pair and extra-pair partners would not affect man's evaluations of female

infidelity. Future research could utilize highly publicized cases of female infidelity, such as of actress Kristen Stewart (Ravitz, 2012) and artificial cases manipulated in the laboratory.

The scale measuring moral appraisal in the current research directly referenced General Petraeus, whereas the scale measuring cognitive appraisal referred to men in general, and not to a specific individual. This distinction may mean that participants made moral appraisals of infidelity with regard to the Petraeus affair, and cognitive appraisals of infidelity as general class of acts. The visual presentation of the actors involved in an actual affair (to include the wife) may have influenced evaluations of the infidelity. Presenting photographs of General Petraeus and his wife and mistress may have affected moral appraisals of infidelity generally, but not specifically about General Petraeus. This possibility is further worth considering because men in the study more like than women to have military experience, which may have affected their evaluation of the actions of another (former) member of the military. The distinctions between evaluations of a specific individual's behavior and of a general class of behaviors should be explored in future research.

Conceptual replication of the current findings could be conducted using manipulations of artificial relationships instead of famous cases of infidelity. For instance, intentionally selected photographs of older, less physically attractive women, and younger, more physically attractive women, could be presented as both the in-pair and extra-pair partners of unfaithful men, to which participants would then provide cognitive and moral appraisals. Although a strength of the present research is that it represented a case of actual infidelity, manipulating images of unknown individuals could give researchers more control over the effects of age/physical attractiveness discrepancies. Participants' reactions to infidelity may differ according to the direction and magnitude of the discrepancy between the physical attractiveness or ages of the in-pair and extra-pair sexual partners.

Finally, conceptual and direct replications would benefit from assessments of a larger sample than that collected in the present study, to increase confidence about the power of a replication (e.g., Stanley, Carter, & Doucouliagos, 2018). Samples might also be collected from a more diverse population than university students. Such designs would allow for a factor analysis to identify subscales of factors affecting evaluations of infidelity that may be unique from other cognitive and moral appraisals. Although the measures used in the present research demonstrated acceptable internal consistency, they also indicate a fair degree of variance. Replications might therefore utilize additional measures of cognitive and moral appraisals to better identify the dimensions of the reactions to infidelity. In closing, while the present study produced results consistent with previous research on empathy, and that accord with the hypothesis of sex differences in sexual psychology, they raise additional questions and considerations for subsequent research.

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