

Men dissociate sexual attraction from moral judgement more than women

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Would you find an opposite-sex individual physically less attractive if you knew that he/she was a bad person? Would you feel the same if you were a man or a woman? This study examined whether gender differences exist in the influence of moral judgements on heterosexual physical attraction. In a first Experiment, participants ($N = 214$) rated on attractiveness photographs of opposite-sex persons. Each photograph was paired with a “good” and a “bad” (from a moral point of view) sentence to depict a quality or activity of the displayed person (i.e., she/he is a defender of human rights in an NGO vs. she/he belongs to a terrorist group). Compared with women, men were significantly less influenced by sentence valence in their attractiveness ratings. A second Experiment ($N = 105$) using photographs of very attractive people showed the same pattern of results. The data suggest that sexual attraction is relatively less permeable to moral factors in men, and that this sex difference is consistent with an evolutionary approach to human sexuality.

Keywords: Gender differences; Physical appearance; Social perception; Morality; Evolution.

At first glance, does a person find an opposite-sex individual physically less (more) attractive if she/he knows that the individual is a bad (good) person? And more importantly for this study, would that hypothetical effect be the same for men and women?

The ingrained “what is beautiful is good” stereotype relies on the assumption that physically attractive people possess a variety of positive qualities. It is worth noting that physical appearance, along with sexual identity, is the most obvious and accessible personal information in social interactions, and perhaps for this reason, a heuristic that links external and interior “beauty” has old roots and is extremely influential. For several decades, research has focused on the beautiful-good effect, and studies and meta-analyses have empirically supported it (see Langlois et al., 2000).

But what about the reverse “what is good is beautiful”? Gross and Crofton (1977) stated that the beauty-good relationship would be bidirectional and it “may operate in the opposite direction such that the more we like and value people, the more physically attractive they appear to us” (p. 86). These authors presented brief personality descriptions with attached photographs of hypothetical female college students and observed that participants rated the photos as more physically attractive when accompanied by more favourable descriptions. Subsequent research has

found further evidence that personality information has effects on perceptions of physical attractiveness (Kniffin & Wilson, 2004; Lewandowski, Aron, & Gee, 2007; Swami et al., 2010; Zhang, Kong, Zhong, & Kou, 2014).

This study aimed to assess the effect of moral judgements on the perception of heterosexual physical attraction, and to examine whether gender differences exist in the intensity of this (hypothetical) effect in particular. As Lewandowski, Aron, & Gee, 2007 and Swami et al., 2010 noted, a shortcoming of many previous experiments is that they collapsed ratings of attractiveness across participant sexes, which is not ideal for assessing heterosexual attraction. Furthermore, many experiments have used target stimuli of a single sex, and the manipulation of personality traits included moral contents only in some cases.

Growing evidence suggests that, although reasoning can play a significant role, moral judgement is more a matter of emotion and affective intuition (Greene & Haidt, 2002); it is “much like aesthetic judgement: we see an action or hear a story, and we have an instant feeling of approval or disapproval” (p. 517). Research indicates that the basis of these moral intuitions — e.g., about reciprocity, others’ suffering, etc. — lies strongly in automatic affective reactions triggered by the perception of intentional behaviours and shaped by natural selection and cultural context (Haidt, 2001). Recent

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functional magnetic resonance imaging (fMRI) findings have also suggested connections between moral and aesthetic judgements; although more complex cerebral representations apparently support the former, moral and facial-attractiveness judgements share brain activity in relevant neuroanatomical regions, specifically the medial orbitofrontal and insular cortices (Tsukiura & Cabeza, 2011; Wang et al., 2014).

There are several reasons to expect some gender differences as to the influence of moral judgement on heterosexual physical attraction. The scientific literature suggests that men generally respond more to sexual stimuli than women (Buss, 2005), especially when the stimulus is visual (Rupp & Wallen, 2008), and differences in the neural activation of some brain structures reflect this divergence between human males and females, such as the amygdala and hypothalamus (Hamann, Herman, Nolan, & Wallen, 2004). Compared with women, men tend to give more importance to their partner's physical attractiveness (Furnham, 2009) and typically report stronger sex drive or sexual motivation (Lippa, 2009). In short-term mating, extensive cross-cultural studies reveal a universal pattern: men are less selective, have more desire for sexual variety and tend to seek short-term mate-ships more actively than women (Schmitt et al., 2003; Schmitt, 2005a); this pattern even remains in countries like Norway, which is typically the highest rated nation in gender empowerment terms, as indexed by the United Nations (Kennair, Schmitt, Fjeldavli, & Harkem, 2009). According to these observed differences, we can expect sexual attraction to be less permeable in men to other factors to influence it, such as the moral judgement that the target of their attraction deserves.

Consequently, this study hypothesises that: a) the moral judgement that a man/woman receives from an opposite-sex individual significantly affects the physical attraction that person at first sight can exert on this individual; and more importantly, b) moral judgements influence the sexual attraction feelings of men relatively less than women. A direct way to assess these hypotheses would be to experimentally manipulate the moral-judgement variable across the same set of target visual stimuli (photographs of real people) presented to participants of the opposite sex.

EXPERIMENT 1

Method

Participants

Two hundred and fourteen young adults of both sexes participated in this study. One hundred and ninety-one

were undergraduates at the University Jaume I (Spain) who volunteered in exchange for course credits. Previous studies have shown that 100 participants provide sufficient power for comparing attractiveness ratings (Gross & Crofton, 1977; Kniffin & Wilson, 2004; Lewandowski et al., 2007). Of those who indicated ethnicity (185), 76% were White/Caucasian, 20% were Hispanic/Latin American and 4% were others. The sample included 80 men whose ages ranged from 18 to 30 ($M = 20.37$; $SD = 2.58$) and 134 women within an age range of 18–34 ($M = 20.19$; $SD = 3.54$). There was no significant difference in age between men and women [$p(t) > .68$].¹

Materials

The experimental stimuli consisted of 84 photographs of real people (42 men and 42 women) selected from a Google Images search (such as other studies, .e.g., Zhang et al., 2014). All the photographs were full-colour and showed a head or a shoulder-and-head portrait of a single person in a naturalistic situation. All the men and women were unknown strangers for Spanish people and displayed different ages, ethnicities and degrees of physical attractiveness. The experimental set did not include possible celebrities or known personages.

This experiment used two identical copies of each photograph. One copy was paired with a fictitious “good” description about the displayed person or his/her activity, and the other copy was paired with a fictitious “bad” description about the displayed person or his/her activity. As the experimental conditions included every photograph, each acted as a control of itself. A “good” description consisted of a sentence that depicted a personal quality or activity which deserved a positive moral judgement (i.e., she/he is a defender of human rights in an NGO, an altruistic nurse in Africa, a prominent leader against animal abuse, the young hero/heroine who saved a child from drowning, etc.). A “bad” description consisted of a sentence that depicted a personal quality or activity which deserved a negative moral judgement (i.e., she/he belongs to a terrorist group, is accused of plagiarism in his/her master thesis, is a prominent member of drug-dealing, cheated many people by pyramid schema, etc). All the sentences were in Spanish, which started with a (fictitious) proper name. The descriptions were paired with the photographs realistically; i.e., a sentence about a swimmer was paired with a photograph that displayed an individual wearing a swimming cap or a swimsuit; a sentence about a politician was paired with a middle-aged respectable looking person in a suit. Ninety-eight percent of the photographs were paired with the same sentences across gender.

¹Sexual orientation was not asked because the experiment was not anonymous (most participants wrote their names to receive course credit).

In order to make the descriptions more veridical, 20 additional photos (10 men and 10 women) were included as filler stimuli, and each displayed a celebrity or well-known personage, which also came from Google Images. Each filler photo was paired with a true description; i.e., a photograph of Bruno Mars placed with the sentence “Bruno Mars, cantante norteamericano ganador de varios Grammy” (Bruno Mars, American singer who won several Grammy Awards).

For each gender, two lists of 52 stimuli (42 experimental + 10 fillers) were created to include each copy of all the photographs on a different list. Each list had the same number of experimental “good” and “bad” descriptions. Experimental and filler items were mixed in random order, and the same applied for the four lists. Each participant faced only one list, so no participant saw more than one version of a given photograph.

Procedure

Each participant was randomly assigned to one of the two stimulus lists of the opposite sex; indeed assignation depended on whether his/her ID number (Spanish DNI) was odd or even. Participants completed the experiment individually online in the university intranet (virtual classroom). Previous research on face perception has demonstrated that laboratory and online studies produce equivalent results (e.g., Lefevre, Ewbank, Calder, von dem Hagen, & Perrett, 2013).

Participants wrote their name and demographic data and received the following instructions: “Estamos preparando un experimento sobre las claves del atractivo físico en hombres y mujeres. Previamente necesitamos tener estímulos con distintos grados de atractivo. En cada ensayo vas a ver la imagen de un hombre [mujer] real obtenida de la prensa en internet. Están en la red por alguna noticia relacionada con ellos. Algunos son más conocidos que otros. Tienes que ver la foto y leer de quién se trata. A continuación, debes indicar en qué grado ese hombre [mujer] te parece sexualmente atractivo desde el punto de vista físico” [We are preparing an experiment on the keys of physical attractiveness in men and women. Beforehand, we need to have stimuli with varying degrees of attractiveness. In each trial, you will see the image of a real man (woman) obtained from media in the Internet. They are on the Internet in connection with any news related to them. Some are better known than others. You have to see the photo and read who he/she is. Next you must indicate to what degree you find this man (woman) sexually attractive from a physical point of view]. The instructions concluded by reminding subjects to look at the image and read the description before giving a response. The photographs appeared individually along

with their description written below in boldface, which remained on the screen until the participant entered his/her rating and moved on to the next trial. For each photo, participants had to provide a physical attractiveness rating on a 7-point scale of 1- “muy poco o nada atractivo/a” (somewhat or not attractive) to 7- “muy atractivo/a” (very attractive). During the experimental session, several reminders appeared on the importance of looking and reading the material before rating each stimulus.

Then during a separate session, 73% of the participants² completed an online questionnaire by making a moral judgement of the personal qualities or activities described in a set of sentences, the same as those previously displayed. The sentences (with no photos) appeared individually and remained on the screen until the participant entered his/her rating on their moral content and moved on to the next trial. For each sentence, participants had to provide a moral judgement on a 7-point scale of 1- “muy mal” (very wrong) to 7- “muy bien” (very right).

When the research ended, a debriefing took place in which the experimenter informed all the undergraduate participants what the study was about and that the experimental descriptions paired with the photographs were fictitious.

RESULTS AND DISCUSSION

First at all, the moral judgement ratings of the sentences contained in the descriptions (with no photos) were analysed by confirming that “good” descriptions received a higher score (5.37) than “bad” descriptions (1.84); $t(155) = 45.63, p < .001$.

The physical attractiveness ratings made by men of the photographs of women paired with “good” descriptions yielded $M = 2.37$ ($SD = 0.70$), 95% CI (2.21, 2.53), and the same photographs paired with “bad” descriptions yielded $M = 2.09$ ($SD = 0.48$), 95% CI (1.98, 2.20). The physical attractiveness ratings made by women of photographs of men paired with “good” descriptions yielded $M = 2.54$ ($SD = 0.72$), 95% CI (2.42, 2.66), and the same photographs paired with “bad” descriptions yielded $M = 1.89$ ($SD = 0.59$), 95% CI (1.79, 1.99) (see Fig. 1).

A two-way analysis of variance (ANOVA) was used to examine the physical attractiveness scores, including moral judgement (“good” description, “bad” description) as the within-participants factor, and gender of raters (men, women) as the between-participants factor. Separate analyses were carried out with participants (F_1) and items (F_2) as the random variables. The gender factor was not significant ($F_1, F_2 < 1$) as the overall rate means did not differ between men and women (2.23 and

²Once completed the main test, the task of rating the sentences was presented as a supplementary activity, not necessary for course credit.

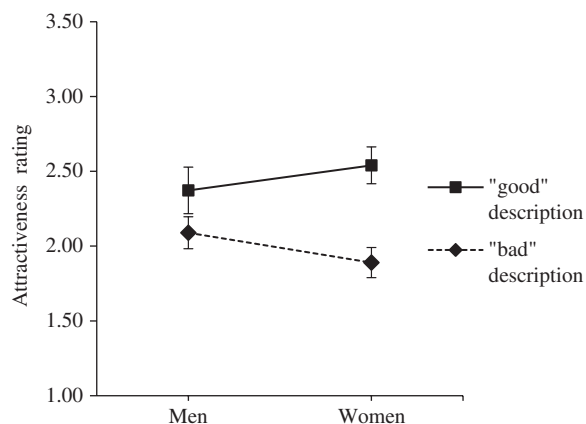


Figure 1. Experiment 1. Means of the attractiveness ratings of photographs of opposite-sex persons made by men and women according to the moral type of the descriptions accompanying the images (“good” vs. “bad”). Error bars indicate 95% confidence intervals.

2.21, respectively). As expected, the moral judgement factor was significant, [$F_1(1, 212) = 143.51$, $MS_e = .152$, $p < .001$, $\eta^2_p = .40^3$; $F_2(1, 41) = 89.43$, $MS_e = .103$, $p < .001$, $\eta^2_p = .69$] because the physical-attraction scores of the photographs were higher when paired with “good” descriptions [2.48, 95% CI (2.38, 2.58)] than when paired with “bad” ones [1.96, 95% CI (1.88, 2.04)]. Crucially, the interaction between moral judgement and gender of raters was significant, [$F_1(1, 212) = 22.02$, $MS_e = .152$, $p < .001$, $\eta^2_p = .09$; $F_2(1, 41) = 22.97$, $MS_e = .059$, $p < .001$, $\eta^2_p = .36$] because the influence of moral judgement on the attractiveness ratings (i.e., the “good” vs. the “bad” difference) was greater for women than for men.

MMEw or Magnitude of Moral Effect on the attractiveness ratings performed by women, that is, the difference of ratings given to photographs paired with “good” vs. “bad” descriptions, was $M = 0.65$, 95% CI (0.55, 0.75), Cohen’s $d = .89$. MME_m, or Magnitude of Moral Effect on the attractiveness ratings made by men was $M = 0.28$, 95% CI (0.17, 0.39), Cohen’s $d = .45$. It is noteworthy that, the overall difference MMEw > MME_m was 0.37, 95% CI (0.22, 0.52), Cohen’s $d = .69$.

The results showed that the moral content of the descriptions associated with the images influenced the physical-attractiveness scores given by men and women, but this influence was not as strong in men. This stronger effect of moral judgement on women’s perceptions of physical attractiveness was consistent across items (see Fig. 2). It is worth noting that the overall attractiveness means were below the mid-point of the 1–7 scale; i.e., participants perceived more photographs as being somewhat attractive than very attractive. We carried

out a partial analysis and included only the scores of the 42 (21 of each sex) most attractive stimuli (i.e., photographs that received higher scores on average); the pattern of the results was the same: men scored $M = 3.27$ ($SD = 1.0$) and $M = 2.85$ ($SD = 0.77$) for the “good” and the “bad” conditions, respectively, and the difference (MME_m) was 0.42, 95% CI (0.24, 0.60), Cohen’s $d = .47$; women scored $M = 3.41$ ($SD = 0.92$) and $M = 2.48$ ($SD = 0.85$) for the “good” and the “bad” conditions, respectively, and the difference (MMEw) was 0.94, 95% CI (0.79, 1.09), Cohen’s $d = 1.05$; the overall difference MMEw > MME_m was 0.52, 95% CI (0.29, 0.75), Cohen’s $d = .62$. An ANOVA also showed a significant interaction between moral judgement and gender factors, [$F_1(1, 212) = 18.95$, $MS_e = .358$, $p < .001$, $\eta^2_p = .08$; $F_2(1, 20) = 24.73$, $MS_e = .057$, $p < .001$, $\eta^2_p = .55$].

Likewise, a partial analysis included only the scores of the 42 less attractive stimuli (i.e., 21 photographs of each sex that obtained lower scores on average). Once again the pattern of the results was the same: men scored $M = 1.48$ ($SD = 0.50$) and $M = 1.33$ ($SD = 0.39$) for the “good” and the “bad” conditions, respectively, and the difference (MME_m) was 0.15, 95% CI (0.08, 0.22), Cohen’s $d = .33$; women scored $M = 1.66$ ($SD = 0.62$) and $M = 1.30$ ($SD = 0.43$) for the “good” and the “bad” conditions, respectively, and the difference (MMEw) was 0.35, 95% CI (0.27, 0.43), Cohen’s $d = .67$; the overall difference MMEw > MME_m was 0.20, 95% CI (0.09, 0.31), Cohen’s $d = .49$. An ANOVA also showed a significant interaction between moral judgement and gender factors, [$F_1(1, 212) = 11.56$, $MS_e = .091$, $p < .001$, $\eta^2_p = .05$; $F_2(1, 20) = 11.23$, $MS_e = .018$, $p = .003$, $\eta^2_p = .36$].

According to the data, most of the stimuli selected in the present experiment were not perceived as fairly or very attractive persons. Even the mean attractiveness ratings for the most attractive stimulus subset did not exceed 3.41, which was still below the mid-point of the 1–7 scale. One important question is whether the same pattern of results could be obtained for a very attractive sample of male and female faces. This issue is of theoretical interest because, although men show more willingness to engage in casual sex (Clark & Hatfield, 1989), recent research suggests that the physical attractiveness of a potential partner will have a stronger effect on women’s than on men’s willingness to accept a short-term sexual relationship (Schutzwohl, Fuchs, McKibbin and Shackelford, 2009). It could be that when a woman sees a very attractive male face she is only slightly influenced by moral judgement, as with men when they see a very attractive female face.

³Partial eta-squared (η^2_p) refers to the proportion of variability in the dependent measure that is attributable to a factor. The effect size interpretations for η^2_p values are as follows: .01 = small, .06 = medium and .14 = large.

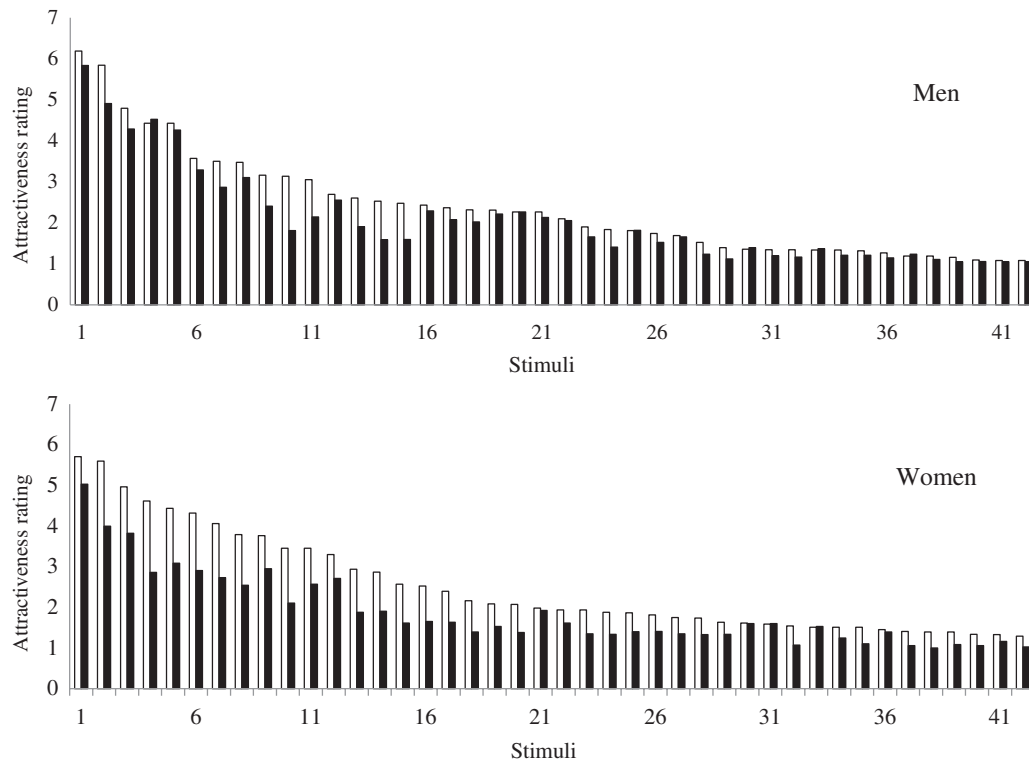


Figure 2. Experiment 1. Target stimuli sorted by attractiveness ratings. The rating means made by men (upper panel) and women (lower panel) according to the moral type of the descriptions accompanying the images (“good” description: empty bars; “bad” description: filled bars).

EXPERIMENT 2

Experiment 2 was a replication of Experiment 1, and the only difference was to use very attractive faces of men and women as the experimental stimuli.

Method

Participants

One hundred and five young adults of both sexes participated in this study. None had participated in Experiment 1. Ninety-five were undergraduates at the University Jaume I (Spain) who volunteered in exchange for course credits. Of those who indicated ethnicity (95), 84% were White/Caucasian, 14% were Hispanic/Latin American and 2% were others. The sample included 41 men whose ages ranged from 19 to 29 ($M = 22.76$; $SD = 3.08$), and 64 women whose age range went from 19 to 39 ($M = 21.68$; $SD = 4.03$). There was no difference in age between men and women [$p(t) = .13$].

Materials

The method for constructing the materials was the same as in Experiment 1. The experimental stimuli consisted of 48 photographs of very attractive real people (24

men and 24 women) selected from Google Images (14 of which had been included in the previous experiment). All the men and women were judged as very attractive by both a man (author) and a woman and were strangers for Spanish people.

As in Experiment 1, for each photograph two identical copies were used. One copy was paired with a fictitious “good” description about the displayed person or his/her activity, and the other copy was paired with a fictitious “bad” description about the displayed person or his/her activity. “Good” and “bad” descriptions were included in the sentences used in Experiment 1, and the photographs were paired with the same sentences across gender.

Forty-eight additional photos (24 men and 24 women) were added as filler stimuli, and each displayed a not very attractive (or quite unattractive) real person. Half of them were of unknown people who were associated with a “good”, “bad” or “neutral” sentence (all differed from the sentences used in the experimental set). The other half corresponded to celebrities or well-known personages associated with veridical descriptions. Experimental and filler items were mixed in random order.

Procedure

The procedure was the same as in Experiment 1 except for the 7-point scale, which ranged from 1- “nada

atractivo/a” (not attractive), less ambiguous than (somewhat or not attractive), to 7- “muy atractivo/a” (very attractive).

A separate session, used to rate the moral content of the sentences (with no photos), was not included in Experiment 2 because the sentences used had been rated in the previous experiment.

RESULTS AND DISCUSSION

The attractiveness ratings made by men of the photographs of women paired with “good” descriptions yielded $M = 5.03$ ($SD = 0.89$), 95% CI (4.75, 5.31), and the same photographs paired with “bad” descriptions yielded $M = 4.64$ ($SD = 0.95$), 95% CI (4.34, 4.94) (see Fig. 3). The difference “good” vs. “bad”, or MME_m, was $M = 0.39$, 95% CI (0.06, 0.72), Cohen’s $d = .42$. The attractiveness ratings made by women of the photographs of men paired with “good” descriptions yielded $M = 4.77$ ($SD = 0.65$), 95% CI (4.61, 4.93), and the same photographs paired with “bad” descriptions yielded $M = 3.94$ ($SD = 0.89$), 95% CI (3.72, 4.16), with no overlapping of CIs. The difference “good” vs. “bad”, or MME_w, was $M = 0.83$, 95% CI (0.59, 1.07), Cohen’s $d = 1.97$.

Once again the same pattern found in Experiment 1 emerged in Experiment 2: the Magnitude of Moral Effect in women (MME_w) was clearly over the Magnitude of Moral Effect in men (MME_m). The overall difference MME_w > MME_m was 0.44, 95% CI (0.04, 0.84), Cohen’s $d = .44$.

A two-way ANOVA was applied and included moral judgement (“good” description, “bad” description) as the within-participants factor and gender of raters (men, women) as the between-participants factor. Separate analyses were carried out with participants (F_1) and items (F_2) as the random variables. This time the gender factor was significant [$F_1(1, 103) = 13.00$, $MS_e = .892$, $p < .001$, $\eta^2_p = .11$; $F_2(1, 23) = 3.87$, $MS_e = 1.374$, $p = .061$, $\eta^2_p = .14$] as the overall rate means differed between men and women (4.84 and 4.36, respectively). That is, in general terms the photos of women selected as experimental stimuli proved more attractive for men than did the selected photos of men for women. As expected, the moral judgement factor was significant, [$F_1(1, 103) = 37.04$, $MS_e = .502$, $p < .001$, $\eta^2_p = .26$; $F_2(1, 23) = 80.11$, $MS_e = .095$, $p < .001$, $\eta^2_p = .78$] because the physical-attraction scores of the photographs were higher when paired with the “good” descriptions [4.90, 95% CI (4.75, 5.05)] than when paired with the “bad” ones [4.29, 95% CI (4.11, 4.47)]. Crucially, the interaction between moral judgement and gender of raters was significant, [$F_1(1, 103) = 4.64$, $MS_e = .502$, $p = .033$, $\eta^2_p = .04$; $F_2(1, 23) = 21.57$, $MS_e = .080$, $p < .001$, $\eta^2_p = .48$] because the effect of moral judgement on the attractiveness ratings

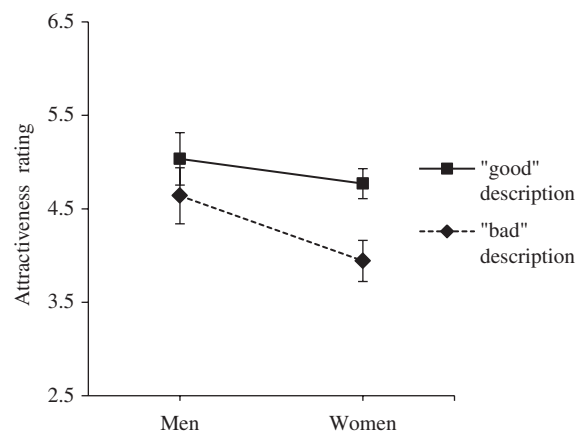


Figure 3. Experiment 2 (very attractive faces). Means of the attractiveness ratings of photographs of opposite-sex persons made by men and women according to the moral type of the descriptions accompanying the images (“good” vs. “bad”). Error bars indicate 95% confidence intervals.

(i.e., the “good” vs. the “bad” difference) was stronger for women than for men.

Basically, the main findings obtained in the previous experiment were replicated in this experiment, which focused on very attractive faces of men and women. That is, the moral valence of the sentences paired with the (very attractive) photographs influenced the physical-attractiveness scores given by men and women, but this influence was significantly greater for women.

DISCUSSION

The results of this study supported both hypotheses. Men and women were sensitive to the experimental manipulation of the moral-judgement variable. Hence, their heterosexual physical attractiveness ratings were dependent, to some extent, on the moral content of the sentence that accompanied each photograph. However, and according to the second hypothesis, men were significantly less sensitive than women to experimental moral manipulation. Male attraction at first sight to a strange woman seemed relatively less permeable to moral factors than female attraction to a strange man. The data from Experiment 1 undoubtedly revealed this pattern; the interaction between the moral-judgement effect and participants’ gender was clearly significant ($p < .001$), with a medium-large effect size ($\eta^2_p = .09$) across subjects and a larger effect size ($\eta^2_p = .36$) across items. Following the recommendations of Cumming (2012), the analyses included estimations; the difference of the attractiveness ratings given by men to women’s photos, accompanied by morally “good” vs. “bad” descriptions, yielded a 95% confidence interval of (0.17, 0.39). The same difference for women was within (0.55, 0.75), and there was no overlap between both intervals. Although less pronounced, the data from Experiment

2 carried out with very attractive faces as the experimental stimuli showed the same general pattern observed in Experiment 1.

Human sexuality is a largely socialised phenomenon, but biological differences between sexes likely contribute to the differences observed in response to target stimuli (Rupp & Wallen, 2008). Extensive cross-cultural studies have found some consistent differences between men and women from different parts of the world for sex and personality. The International Sexuality Description Project (ISDP) conducted by David Schmitt, in which more than 100 psychologists participated, observed some universal patterns in sex behaviour. Tests administered to 16,228 people in 52 nations from 10 major world regions (North America, South America, Western Europe, Eastern Europe, Southern Europe, Middle East, Africa, Oceania, South/Southeast Asia and East Asia) showed that certain gender differences are consistent throughout these world regions (Schmitt et al., 2003). Men, compared with women, possess a greater desire for a variety of sexual partners, require less time before consenting to sexual intercourse and tend to more actively seek short-term mateships. According to Schmitt (2005a), the responses of 14,059 people from 49 countries, ranging from Argentina to Zimbabwe, indicated that gender differences in socio-sexuality are generally large and display cross-cultural universality, which confirms several evolutionary human mating theories. More recently, Richard Lippa analysed a huge dataset obtained from over 200,000 people from 53 nations by means of a BBC Internet survey to examine cross-cultural patterns for two sexual traits, sex drive and socio-sexuality (i.e., restricted vs. unrestricted sexual attitudes and behaviour) and for a physical trait (height) with a biologically-based sex difference. The results demonstrated that whereas the parameters for socio-sexuality were more consistent with a hybrid model, i.e., gender differences were explained by both biological and social structural influences, differences in sex drive and height were more consistent with a biological model (Lippa, 2009).

This cross-cultural universality of certain gender differences is well-predicted from an evolutionary approach (Buss, 2005; Buss & Schmitt, 1993; but see Eagly & Wood, 1999). A clear asymmetry between men and women in biological parental investment (internal fertilisation, gestation and lactation) also favours asymmetry in mating strategies. In Schmitt's (2005b) words, "a man can produce as many as 100 offspring by mating with 100 women over the course of a year, whereas a man who is monogamous tends to have only a child with his partner during that time; in evolutionary currencies, this represents a strong selective pressure [...] for men's short-term mating strategy to favour a desire for sexual variety [...] Whether a woman mates with 100 men or is monogamous bonded with only one man, she still tends to produce only one child in a given year" (p. 271). This

biological asymmetry likely contributes to the universality of some patterns; i.e., men are more willing to engage in casual sex and less selectively with a stranger (Clark & Hatfield's, 1989; Schützwohl et al., 2009; but see Conley, 2011). On the contrary, given the good biological parental investment of women, compared with men, it seems logical that they are more selective about mating and prefer men who are willing to consider parental investment (Trivers, 1972). In Buss' (2007, p. 106) terms, "a woman who preferred to mate with a reliable man who was willing to commit to her presumably would have had children who survived, thrived and multiplied; over thousands of generations a preference for men who showed signs of being willing and able to commit evolved in women". A woman who has the ability to detect a man's willingness for parental investment would be at an adaptive advantage. The results of this study are consistent with this point of view; we expect women's attraction to men to be more permeable to the effect of the moral and personal qualities perceived in men. It is likely in women, compared with men, that physical attraction feelings are less dissociated from moral and personality factors. This study examined the physical attraction exerted by strangers at first sight, independently of any specific context. It would be valuable to know if the results would have been the same had the attractiveness ratings been contextualised as either "a long-term mate" or "a short-term mate". This is an issue that deserves further research.

Recent fMRI research has observed brain connections between moral and aesthetic judgements. More complex cerebral representations support moral judgements than facial-attractiveness judgements, but both share brain activity in major cerebral regions, such as the orbitofrontal and insular cortices, and some subcortical structures (Tsukiura & Cabeza, 2011; Wang et al., 2014). However, no study has systematically compared brain activations across sexes. For example, Tsukiura & Cabeza (2011) used only male faces and female participants because their pilot studies showed that attractiveness ratings were more consistent across participants when women rated male faces. It would be interesting for further research to examine whether the gender differences observed in physical attractiveness and moral judgements have neural correlates in brain activity.

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