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# Gender Differences in the Jealousy-Evoking Effect of Rival Characteristics: A Study in Spain and Argentina

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Abraham P. Buunk<sup>1,2</sup>,  
Alejandro Castro Solano<sup>3,4</sup>,  
Rosario Zurriaga<sup>5</sup>,  
and Pilar González<sup>5</sup>

## Abstract

This study examines gender differences in the jealousy-evoking nature of rival characteristics in two Spanish-speaking countries (Argentina and Spain). A total of 388 Spanish students and 444 Argentinean students participated in the study. First, the cross-cultural validity of a Dutch scale containing 56 rival characteristics was examined. A factor analysis distinguished four dimensions (i.e., social power and dominance, physical attractiveness, physical dominance, and social-communal attributes). After the analysis, the final scale contained in total 24 items. Results showed that in Argentina and Spain combined, men experienced more jealousy than women when their rival was more physically dominant. In contrast, women experienced more jealousy than men when their rival was more physically attractive, had more social-communal attributes, and had more social power and dominance. In both genders, social-communal attributes was the most jealousy-evoking characteristic, followed by physical attractiveness in women and by social power and dominance in men. In addition, in Argentinean participants but not in Spanish participants, those high in social comparison orientation found the rival characteristics more jealousy evoking. These results provide strong support for the evolutionary hypothesis of gender differences in the rival characteristics that may evoke jealousy. Small size effect differences were found between the two countries and only regarding social-communal attributes.

## Keywords

Jealousy, social comparison orientation, gender differences, cultural differences, rival characteristics

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<sup>1</sup>University of Groningen, Groningen, the Netherlands

<sup>2</sup>Royal Netherlands Academy of Arts and Sciences, Amsterdam, the Netherlands

<sup>3</sup>University of Palermo, Buenos Aires, Argentina

<sup>4</sup>Consejo Nacional de Investigaciones Científicas y Técnicas, Argentina

<sup>5</sup>University of Valencia, Valencia, Spain

## Corresponding Author:

Abraham P. Buunk, University of Groningen, Grote Kruisstraat 2/1,  
9712 TS Groningen, the Netherlands.  
Email: a.p.buunk@rug.nl

Jealousy is often defined as the response to a threat to or the actual loss of a valued relationship (often sexual) with another person, due to an actual or imagined rival vying for one's partner's attention (cf., Bringle & Buunk, 1985; Buunk & Dijkstra, 2000; Guerrero, Spitzberg, & Yoshimura, 2004; Salovey, 1991). Although some authors (e.g., Sabini & Silver, 2005) view jealousy as an emotion in itself, most authors consider it as a blend of basic-level emotions. While it is strongly related to feelings such as fear, suspicion, distrust, anxiety, and anger (e.g., Guerrero, Trost, & Yoshimura, 2005; Parrot & Smith, 1993), jealousy also involves feelings of betrayal, rejection, hurt, threat, and loneliness (e.g., Buunk, 1995; Green & Sabini, 2006; Haslam & Bornstein, 1996). Jealousy is not merely an emotional response. It is also characterized by specific thoughts and coping behaviors; in other words, jealousy is a multidimensional concept (Guerrero et al., 2004; Sharpsteen, 1991). As a general rule, jealousy may be defined as a negative emotional response to infidelity of one's partner—*reactive jealousy*—or may take the form of *anxious* or *suspicious* jealousy in which an individual cognitively generates images of the partner becoming actively involved with someone else, which results in obsessive anxiety, upset, suspiciousness, and worrying (Barelds & Barelds-Dijkstra, 2007; Buunk, 1991; Rydell & Bringle, 2007). While jealousy may constitute a response to infidelity of a partner that has *already occurred*, in many cases, individuals may be confronted with a rival for their partner's attention without actual infidelity having taken place. In this case, individuals may respond with *preventive* jealousy (Buunk, 1997; Parrot, 1991; Pfeiffer & Wong, 1989). In this type of jealousy, individuals try to prevent intimate contact of the partner with another person and respond overly reactive to even slight signals of interest of their partner in a third person.

It is assumed that feelings of jealousy are in part evoked through a process of social comparison in which individuals compare their own personal characteristics—and especially those relevant to one's value as a mate—with those of the rival (Broemer & Diehl, 2004; DeSteno & Salovey, 1996; Schmitt, 1988). Only when individuals observe that their rival (the third person involved) exceeds them on these qualities may the rival be perceived as a threat to the relationship and consequently evoke feelings of jealousy (Buss, Shackelford, Choe, Buunk, & Dijkstra, 2000; Dijkstra & Buunk, 1998). Hupka, Otto, Tarabrina, and Reidl (1993) found that individuals in three cultures (Russia, the United States, and Germany) agreed that the words *rival* and *sex* were associated strongly with jealousy, but not with emotions such as anger, envy, or fear. From this point of view, jealousy is an evaluative-motivational complex aimed at assessing the threat that a rival may impose to one's reproductive interests (Buunk & Dijkstra, 2000; Knobloch, Solomon, & Cruz, 2001).

Evolutionary theorizing is gaining more and more influence in psychology, as is apparent from two recent handbooks on evolutionary psychology (e.g., Buss, 2005; Dunbar & Barrett, 2007). Indeed, in the past decade, evolutionary psychology has emerged as one of the most important theoretical frameworks to explain the phenomenon of jealousy (Buss, 2000; Buss, Larsen, Semmelroth, & Westen, 1992). This perspective assumes that present-day humans are characterized by a complex set of mental mechanisms that have evolved because such mechanisms fostered reproductive success in ancestral times. Because an enduring relationship between mates increased both individuals' and their offspring's chances of survival, supposedly, jealousy has evolved to alert the individual to take action to prevent a mate from abandoning the relationship (Buss, 1994; Daly, Wilson, & Weghorst, 1982; DeKay & Buss, 1992). Research on jealousy from an evolutionary perspective has in the past decades mainly focused on gender differences in the importance of emotional versus sexual jealousy (i.e., on the different responses to an emotional attachment between a third person and one's partner and a "pure" sexual affair between a third person and one's partner; e.g., Buss et al., 1992; Buunk, Angleitner, Oubaid, & Buss, 1996; Guerreo et al., 2004; Harris, 2003; Schützwohl, 2006).

However, from an evolutionary psychological perspective, it can be expected that there will not only be gender differences in the type of jealousy but also in the rival characteristics that evoke jealousy. The major reason for this is that, in general, men and women have been found to value in part different characteristics in a mate. Indeed, gender differences in mate preferences have been confirmed in various cross-cultural studies and meta-analyses (Buss, 1989). Men value in general a potential mate's physical attractiveness relatively more, supposedly because in ancestral times physical attractiveness served as an important cue to a woman's fertility (Buss, 1989; Buss & Barnes, 1986; Eagly, Richard, Makhijani, & Longo, 1991; Kenrick, Sadalla, Groth, & Trost, 1990; Symons, 1979). In contrast, women value in a man social status and dominance relatively more, supposedly because this reflects women's evolved preference for men who are able to provide them and their offspring with sufficient resources and protection (Barber, 1995; Buss, 1989; Buss & Barnes, 1986; Kenrick et al., 1990; Schmitt, 2005). From this point of view, women feel strongly attracted to men who are self-confident, not afraid to take initiative, assertive, extraverted, and have ascendance traits related to a social dominant personality. Women also value physical features in men such as height, strength, muscularity, athleticism, or large jaws. Men who possess these characteristics are highly likely to achieve social status in the future (Buss, 1994; Buss & Schmitt, 1993; Cunningham, Barbee, & Pike, 1990). These features constitute the core of men's mate value.

Among human males, the inclination to assess the potential threat of a rival has a long evolutionary history rooted in intrasexual competition (i.e., fights over the access to females, behaviors that are found in many other species as well; Buunk, 1986; Daly & Wilson, 1983; Campbell, 2007; Wrangham & Peterson, 1996). However, human males invest much more heavily in their offspring than males of other primate species (e.g., Geary, 1998; Mace, 2007) and will therefore be highly alert to rivals who interfere in the relationship. As people will feel particularly jealous when the rival possesses characteristics that are attractive to the other gender, for males especially a rival who possesses characteristics related to social dominance and social status will evoke jealousy (e.g., Buss, 1989; Schmitt, 2005). On the other hand, intrasexual competition among human females seems an evolutionarily more novel phenomenon that arose with the advent of pair bonding, due to which females began to compete for resources provided by men (Campbell, 2002). For females, a major threat is that they may have to share their partner's resources with another woman and, even more threatening, that their partner will direct all of his investments to another woman (Buss, 2000). Because in men's mate preferences signals of reproductive value in a woman play a crucial role, an especially physically attractive person will trigger jealousy in women (Buss, 1989; Buss & Barnes, 1986; Kenrick et al., 1990; Townsend & Wasserman, 1998).

### *Jealousy-Evoking Effect of Rival Characteristics*

Until a decade ago, little research had addressed the role of rival characteristics in jealousy, and the research that had been done was limited to a few characteristics, allowing no definitive conclusions about which rival characteristics are the most jealousy evoking (e.g., Broemer & Diehl, 2004; Nadler & Dotan, 1992; Yarab & Allgeier, 1999). To fill this gap, Dijkstra and Buunk (2002) started the development of an inventory to chart rival characteristics, by asking people in open interviews what kind of person would evoke more jealousy when related to his or her partner (see, for a review, Buunk, Massar, & Dijkstra, 2007). This research program resulted eventually in a Dutch 56-item inventory, composed of five factors: social dominance, physical attractiveness, seductive behavior, physical dominance, and social status. The main finding obtained was that jealousy in men was, more than in women, evoked by the rival's social and physical dominance, whereas jealousy in women was, more than in men, evoked more by the rival's physical

attractiveness. These findings were obtained in Dutch college samples and were cross-validated in Dutch community samples (Dijkstra & Buunk, 2002). In addition, Dijkstra and Buunk (1998) conducted an experiment that showed similar findings. In this study, participants were presented with a scenario in which participants' current (real or imagined) partner was flirting with the opposite-gender individual. Next, participants received one of four profiles of the individuals flirting with their partner, consisting of a picture and a personality description. The picture showed an individual of either high or low physical attractiveness, and the personality description depicted someone who was either high or low in dominance. After reading the scenario and the profile, participants were asked how they would respond to the situation. The hypothesized gender difference clearly emerged: Jealousy in men was in particular influenced by the rival's social dominance, whereas jealousy in women was in particular influenced by the rival's physical attractiveness. Subsequent research has shown that such differences occur especially in the case of emotional rather than sexual jealousy (Buunk & Dijkstra, 2003). Overall, research using both descriptive and experimental methods as well as various kinds of stimuli material seem to show consistent gender differences in the jealousy-evoking effect of particular rival characteristics (Buunk et al., 2007), not only in the Netherlands but also in South Korea and the United States (Buss et al., 1999). Thus, gender differences in jealousy-evoking characteristics seem to be widespread.

### *The Present Study*

Because most studies on rival characteristics were done with Dutch participants, the present research had as its main goal to test gender differences in the jealousy-evoking effect of rival characteristics in two Latin countries: Spain and Argentina. Cross-cultural data are important for testing evolutionarily based hypotheses. In the first place, because the gender-linked triggers of jealousy are hypothesized to be species-typical characteristics of evolved human psychology, it is important to gather data from other cultures to examine the cross-cultural robustness of such characteristics (e.g., Schmitt & Pilcher, 2004; Symons, 1979). Although it is possible that the degree of gender differences varies between cultures in response to different ecological conditions, if the evolutionary hypotheses are correct, overall gender differences should be more or less similar across diverse cultures (Buss et al., 2000). Cultures differ in their attitudes toward aspects of sexuality such as premarital sex and extramarital affairs (Buss, 1989; Buunk & Van Driel, 1989), and in their emphasis on sexual equality (Frayser, 1985), with the Dutch downplaying gender differences and emphasizing equality between the sexes somewhat more than people in Latin countries such as Spain and Argentina (Glick et al., 2004; Hofstede, 1984). Moreover, compared to people in Spain and Argentina, the Dutch tend to show more pleasant and fewer unpleasant emotions (Schimmack, Oishi, & Diener, 2002) and more interpersonal trust and individualism (Allik & Realo, 2004), dimensions that all might be related to jealousy. Therefore, it would seem relevant to examine gender differences in rival characteristics in Spain and Argentina, countries that are quite different from the Netherlands.

We combined the data for both countries because Spain and Argentina are cross-culturally very similar. Both countries are medium in individualism (Diener, Gohm, Suh, & Oishi, 2000; Hofstede, 2001), low in competitiveness, low in self-reliance, high in interdependence (Green, Deschamps, & Páez, 2005), high in positive emotions and medium in negative emotions (Schimmack et al., 2002), and medium to low in interpersonal trust (Allik & Realo, 2004). Although no research in Spain and Argentina has examined the role of rival characteristics in jealousy, there is already evidence that in Spain (Fernandez, Vera-Villaruel, Sierra, & Zubeidat, 2007), as well as in Argentina (Casullo & Liporace, 2003), gender differences in the importance of sexual versus emotional jealousy are the same in both countries and are similar to those obtained

in the United States and the Netherlands. In the current study, we first examined whether the factor structure of the original 56-item scale of rival characteristics found by Dijkstra and Buunk (2002) would also be obtained in university samples of Argentinean and Spanish participants. The purpose of this analysis was to examine the interrelationships of the items that compose the scales to assess the structural equivalence between cultures (Van de Vijver & Leung, 1997; Van de Vijver & Tanzer, 1997). This is a required condition when two or more different cultures are compared with respect to any set of variables (Berry, Poortinga, Segall, & Dasen, 2006). In addition, because it was assumed that jealousy results from a process of social comparison with a rival, the present research included a measure for individual differences in social comparison orientation that has been found to be related to jealousy (Buunk, Belmonte, Peiró, Zurriaga, & Gibbons, 2005; Gibbons & Buunk, 1999).

## Method

### *Participants and Procedure*

A total of 832 students filled out the rival's characteristics questionnaire after class, after having obtained the cooperation and permission of the professors. It was emphasized that the data were anonymous, that participation was voluntary, and that there was no obligation to participate or to continue participating. The study was a part of a larger study on several topics related to evolutionary psychology. The participants did not receive money for their participation. In the sample, 388 participants were Spanish students (females  $n = 249$  and males  $n = 139$ ; age:  $M = 23.78$ ,  $SD = 7.12$ ) from the University of Valencia (Spain), whereas the remaining 444 participants (females  $n = 228$  and males  $n = 216$ ; age:  $M = 24.53$ ,  $SD = 7.49$ ) were Argentinean students from the University of Palermo (Buenos Aires, Argentina). Two hundred and ninety-seven participants in the Argentinean sample were in a romantic relationship with another person (67%); the remaining 147 participants were not (33%). Participants involved in a romantic relationship had, on average, a relationship of  $M = 2.36$  years ( $SD = 4.63$ ). The fields of study included social and behavioral sciences (45%), business and economy (22%), medical sciences (8%), law (4%), natural sciences (5%), and a large variety of other fields (16%). Of the Spanish sample, 239 participants (62%) were in a romantic relationship with another person; the remaining 149 participants were not (38%). Participants involved on a romantic relationship had, on average, a relationship of  $M = 4.63$  years ( $SD = 6.21$ ). The fields of study included social and behavioral sciences (10%), physiotherapy (16%), physical activity sciences (13%), labor sciences (14%), history (12%), tourism (15%), biology (15%), and some other fields (5%).

### *Questionnaires*

Participants were given a questionnaire in which they were asked to imagine that the following situation would happen to them:

You are at a party with your girlfriend and you are talking with some of your friends. You notice your girlfriend across the room talking to a man you do not know. You can see from his face that he is very interested in your girlfriend. He is listening closely to what she is saying and you notice that he casually touches her hand. You notice that he is flirting with her. After a minute, your girlfriend also begins to act flirtatiously. You can tell from the way she is looking at him that she likes him a great deal. They seem completely absorbed in each other.

This scenario was the same as the one first used by Dijkstra and Buunk (1998), and used in many subsequent studies (e.g., Buunk et al., 2007). Next, male participants were asked, "When my partner and a different man would flirt with each other, I would feel particularly jealous when the other man...", after which they were presented with a questionnaire containing 56 characteristics that might describe their rival. Female participants received exactly the same scenario, except for the gender of their rival. Each characteristic was measured on a 5-point scale (1 = *not at all*, 5 = *very much*). Dijkstra and Buunk (2002) factor analyzed the characteristics in Dutch samples, and it was found that they were clustered around five factors: *social dominance* (e.g., more charismatic, more self-confidence, a better talker, more popular, more sensitive to my partner's needs), *physical attractiveness* (e.g., more slender, better figure, more attractive body), *seductive behaviors* (e.g., dressed more nakedly, behaves more provocatively, more of a seducer), *physical dominance* (more muscular, better in sports, build heavier), and *social status* (e.g., has a better job, has more money, has a better education). The questionnaire on rival characteristics was translated into Spanish and adapted to the local language expressions in both countries by senior investigators.

In addition, participants filled out the Spanish version (Buunk et al., 2005) of the scale measuring social comparison orientation (i.e., the dispositional tendency to compare oneself with others; Gibbons & Buunk, 1999). Participants were, for instance, asked, "I am not the type of person who compares oneself with others" and "I always pay a lot of attention to how I do things compared with how others do things." Items were assessed on 5-point scales (1 = *strongly disagree*, 5 = *strongly agree*). Cronbach alpha for the scale was 0.79 for the Argentinean sample and 0.82 for the Spanish sample. The Spanish version has been validated extensively (Buunk et al., 2005).

## Results

### *Factor Structure of Rival Characteristics*

All data were analyzed with SPSS/PC. To analyze the cross-cultural validity of original Dijkstra and Buunk (2002) findings suggesting a clustering of the 56 rival characteristics in five separated factors, a principal component analysis (PCA) with varimax rotation was conducted in the combined Argentinean and Spanish samples. To examine if the rival characteristics had a similar clustering as in the Dutch data, first a five-factor solution with varimax rotation was inspected. The percentage of variance accounted for by the five factors was 55.74 (respectively, 19.54, 4.32, 3.81, 1.96, and 1.56). The first factor was more robust than the others, accounting for a larger percentage of the variance and containing 22 items mostly related to social dominance; the second factor was related to physical attractiveness (especially female attractiveness) and the third was related to physical dominance. These first three factors were quite similar to original data by Dijkstra and Buunk (2002). However, the fourth factor found by Dijkstra and Buunk (seductive behavior) was not clearly manifest and had lower item loadings than expected. The fifth factor could not be interpreted clearly and did not match the social status factor that we expected on the basis of the Dijkstra and Buunk study.

Because the fifth factor could not be interpreted clearly and because the first four factors were obviously the strongest, all with loadings in the range of .40 through .85, it was decided to include maximally four rotated factors in the final solution. This four-factor solution explained 52.94% of the variance. However, the data did not fit the four expected clusters very well. To solve this problem, an iterative step-by-step process of excluding items from the solution was carried out. The criteria applied were that the items loadings  $>.50$  for the factor were included and that items with loadings on two or more factors were ruled out of the solution. In this process, a large number of items were excluded. The final 24 items' solution offered the

**Table 1.** Varimax Rotated Factor Structure of the Rival Characteristics for the Total Sample ( $n = 832$ )

| Rival Characteristic                    | Factor I                | Factor II          | Factor III                 | Factor IV                  | Original Item Number |
|---|-------------------------|--------------------|----------------------------|----------------------------|----------------------|
|   | Physical Attractiveness | Physical Dominance | Social Power and Dominance | Social Communal Attributes |                      |
| Scale reliability (alpha)               | 0.91                    | 0.89               | 0.81                       | 0.85                       |                      |
| Explained variance                      | 36%                     | 12%                | 9%                         | 5%                         |                      |
| Has a tighter waist                     | <b>0.87</b>             |                    |                            |                            | 16                   |
| Has more beautiful legs                 | <b>0.83</b>             |                    |                            |                            | 15                   |
| Has more beautiful hips                 | <b>0.82</b>             |                    |                            |                            | 54                   |
| Is more slender                         | <b>0.81</b>             |                    |                            |                            | 39                   |
| Has a better figure                     | <b>0.72</b>             |                    |                            |                            | 14                   |
| Is built lighter                        | <b>0.63</b>             |                    |                            |                            | 55                   |
| Has broader shoulders                   |                         | <b>0.90</b>        |                            |                            | 19                   |
| Is more muscular                        |                         | <b>0.84</b>        |                            |                            | 20                   |
| Is bigger                               |                         | <b>0.81</b>        |                            |                            | 17                   |
| Is built heavier                        |                         | <b>0.79</b>        |                            |                            | 56                   |
| Is taller                               | 0.32                    | <b>0.67</b>        |                            |                            | 18                   |
| Is physically stronger                  |                         | <b>0.63</b>        |                            |                            | 9                    |
| Behaves more provocatively              |                         |                    | <b>0.66</b>                |                            | 33                   |
| Has more authority                      |                         |                    | <b>0.66</b>                |                            | 43                   |
| Has had a higher education              |                         |                    | <b>0.65</b>                |                            | 32                   |
| Is more popular                         |                         |                    | <b>0.64</b>                |                            | 31                   |
| Is smoother and more shrewd             |                         |                    | <b>0.63</b>                |                            | 40                   |
| Is more of a troublemaker               |                         |                    | <b>0.60</b>                |                            | 38                   |
| Is a better listener                    |                         |                    |                            | <b>0.83</b>                | 28                   |
| Is more attentive                       |                         |                    |                            | <b>0.79</b>                | 29                   |
| Is more sensitive to my partner's needs |                         |                    |                            | <b>0.78</b>                | 8                    |
| Is sweeter                              |                         |                    |                            | <b>0.62</b>                | 47                   |
| Has a better sense of humor             |                         |                    | 0.34                       | <b>0.55</b>                | 7                    |
| Is more self-confident                  |                         |                    | 0.41                       | <b>0.49</b>                | 23                   |

Note. Only loadings > .30 are reported. The loadings in bold are those that load highest of the factor to which they belong.

most consistent and best interpretable results (shown in Table 1). The first factor clearly reflects *physical attractiveness* and especially female attractiveness (e.g., has a tighter waist, has more beautiful legs, has more beautiful hips, is more slender, has a better figure, is built lighter). The second factor can be labeled as *physical dominance* (e.g., has broader shoulders, is more muscular, is bigger, is built heavier, is taller, is physically stronger). Under the third factor, we find characteristics originally related to the social dominance and seductive behavior factors obtained by Dijkstra and Buunk (2002); this factor was labeled *social power and dominance* (e.g., behaves more provocatively, has more authority, has had a higher education, is more popular, is smoother and more shrewd, is more of a troublemaker). The fourth factor was named *social-communal attributes* (e.g., is a better listener, is more attentive, is more sensitive to my partner's needs, is sweeter, has a better sense of humor, is more self-confident). This clustering of rival characteristics



resulted in a very clear solution. Two factors directly matched the original Dijkstra and Buunk (2002) data (physical attractiveness and physical dominance), and the social and communal attributes factor consisted of a subset of the original social dominance factor. However, the third factor was a combination of the original social dominance factor (e.g., is more popular, has more authority) and seductive behavior (is smoother and more shrewd, behaves more provocatively, is more of a troublemaker), with one item belonging to the original social status factor (has had a higher education). This social power and dominance factor contains some aspects of unrestrained behavior (i.e., charisma and social status), characteristics more typical of men. Finally, as Table 1 shows, a good reliability was obtained for the scales based on the factors of rival characteristics with a range from .81 through .91.

We next examined if the final factor structure could also be found in the Spanish and Argentinean samples separately by conducting factor analyses with a fixed number of factors of 4 over the 24 final items. In the Spanish sample, the solution explained 65.04% of the variance, and the four factors were clearly manifest, with loadings greater than .50 (and in most cases greater than .60) on the appropriate factors, with two exceptions. The item "is more popular" loaded somewhat higher on the physical attractiveness than on the social power and dominance factor (.48 vs. .37), and the item "has had a higher education" loaded higher, only .36, on the social power and dominance factor (though this was the highest loading of this item). In the Argentinean sample, the solution explained 62.68% of the variance, and the four factors were also clearly manifest, with most loadings greater than .60 on the appropriate factors, again with two exceptions. The items "has more self-confidence" (.53 vs. .35) and "has a better sense of humor" (.45 vs. .41) loaded somewhat higher on the social power and dominance factor. Nevertheless, overall, the factor structure obtained in the sample as a whole was also quite consistently present in both subsamples and explained in both subsamples a substantial amount of variance.

### Country and Gender Differences

To examine whether the jealousy-evoking effect of rival characteristics was influenced by participant country and gender, a MANOVA was conducted in the total sample on the four clustered characteristics included as dependent variables. Participant country (Argentina vs. Spain) and gender (male vs. female) were included as independent variables ( $2 \times 2$  design).

The analysis revealed a main effect of participant country,  $F(4, 825) = 16.97, p < .001, \eta^2 = .08$ , indicating that rivals evoked overall more jealousy in Spanish than in Argentinean participants. Univariately, this effect was due to social-communal attributes and social power and dominance ( $F = 22.40, p < .01$  and  $F = 4.10, p < .01$ , respectively). Thus, Spanish participants would be overall more jealous when their rival was better in social-communal attributes and higher in social power and dominance (see Table 2).

The MANOVA also revealed a main effect of gender,  $F(4, 825) = 141.27, p < .001, \eta^2 = .41$ , which univariately could be attributed to all four dimensions. As shown in Table 2, men experienced more jealousy than women when their rival was more physically dominant,  $F(1, 828) = 61.09, p < .001$ , whereas women experienced more jealousy than men when their rival was more physically attractive,  $F(1, 828) = 194.36, p < .001$ , had more social-communal attributes,  $F(1, 828) = 9.36, p < .001$ , and had more social power and dominance,  $F(1, 828) = 6.58, p < .001$ .

A multivariate country by gender interaction was also found,  $F(4, 825) = 2.59, p < .05, \eta^2 = .01$ , which univariately could be attributed to social-communal attributes,  $F(1, 828) = 5.53, p < .05$  (for all other  $F$ s,  $p > .15$ ). As Table 2 shows, Spanish women experienced more jealousy when their rivals had more social-communal attributes (and also more social power and dominance) than Spanish men, whereas Argentinean men and women experienced the same degree of jealousy over such attributes.

**Table 2. Jealousy Evoked by Rival Characteristics as a Function of Gender for Argentina and Spain**

| Rival Characteristic       | Spain (n = 388) |                  |                  | Argentina (n = 444) |                  |                  | Total (n = 832) |                  |                  |
|----------------------------|-----------------|------------------|------------------|---------------------|------------------|------------------|-----------------|------------------|------------------|
|                            | Men<br>n = 139  | Women<br>n = 249 | Total<br>n = 388 | Men<br>n = 216      | Women<br>n = 228 | Total<br>n = 444 | Men<br>n = 355  | Women<br>n = 477 | Total<br>n = 832 |
| Physical attractiveness    | 1.67 (0.76)     | 2.59 (1.08)      | 2.26 (1.08)      | 1.61 (0.70)         | 2.57 (1.07)      | 2.11 (1.03)      | 1.64 (0.73)     | 2.58 (1.08)      | 2.11 (1.03)      |
| Physical dominance         | 1.74 (0.89)     | 1.39 (0.57)      | 1.51 (0.73)      | 1.90 (1.02)         | 1.39 (0.57)      | 1.64 (0.86)      | 1.84 (0.97)     | 1.40 (0.58)      | 1.64 (0.86)      |
| Social power and dominance | 2.06 (0.85)     | 2.30 (0.91)      | 2.22 (0.90)      | 2.26 (0.99)         | 2.37 (0.93)      | 2.32 (0.97)      | 2.19 (0.95)     | 2.34 (0.92)      | 2.32 (0.97)      |
| Social-communal attributes | 2.90 (0.95)     | 3.26 (0.92)      | 3.14 (0.95)      | 2.74 (0.98)         | 2.78 (0.94)      | 2.77 (0.96)      | 2.80 (0.97)     | 3.04 (0.96)      | 2.77 (0.96)      |
|                            |                 |                  |                  |                     |                  |                  |                 |                  |                  |

\*p < .05. \*\*p < .01.

### Order of Rival Characteristics in Both Countries and for Both Genders

Separately for each country, within-subject ANOVA repeated measures and subsequent pairwise comparisons were conducted in order to establish which rival characteristics evoked the most jealousy in Spanish and Argentinean participants (see Table 2). The results showed a significant effect for Spanish participants,  $F(3, 385) = 367.48, p < .001, \eta^2 = .74$ , as well as for Argentinean participants,  $F(3, 441) = 177.19, p < .001, \eta^2 = .55$ . In both Spanish and Argentinean participants, the most jealousy was evoked by social-communal attributes, next by social power and dominance, followed by physical attractiveness, with physical dominance evoking the lowest intensity of jealousy. In Argentinean participants, all differences were significant ( $ps < .001$ ), but in Spain the difference between physical attractiveness and social power and dominance was not significant ( $p = .33$ ); for all other differences,  $ps < .001$ .

Separately for each gender, a within-subject ANOVA repeated measures and subsequent pairwise comparisons were conducted in order to establish which rival characteristics evoked the most jealousy in men and in women (see Table 2). The results showed a significant effect for men,  $F(3, 352) = 191.12, p < .001, \eta^2 = .62$ , as well as for women,  $F(3, 474) = 577.49, p < .001, \eta^2 = .78$ . In men, the most jealousy was evoked by social-communal attributes, next by social power and dominance, followed by physical dominance, with physical attractiveness evoking the lowest intensity of jealousy. All differences were significant ( $ps < .001$ ). The order from most to least jealousy-evoking rival characteristics was quite different for women: The most jealousy was evoked by social-communal attributes, next by physical attractiveness, followed by social power and dominance, with physical dominance evoking the lowest intensity of jealousy. All differences were significant ( $ps < .001$ ).

### Social Comparison Orientation

Separately for each country and gender, correlations were calculated between social comparison orientation (SCO) and the jealousy-evoking effect for the four clusters of rival characteristics.

**Argentina.** Males' SCO scores were significantly related to the intensity to which they rated rival characteristics as jealousy evoking: As men were more inclined to compare themselves with others, they experienced more jealousy in response to a rival's social-communal attributes ( $r = 0.30, p < .001$ ) and social power and dominance ( $r = .27, p < .001$ ), but not in response to a rival's physical attractiveness and physical dominance ( $r = .10$  and  $r = .11, ns$ ). Women who were more inclined to compare themselves with their counterparts responded with more jealousy to a rival's social power and dominance ( $r = 0.25, p < .001$ ), physical attractiveness ( $r = .14, p < .05$ ), and social-communal attributes ( $r = .14, p < .05$ ) than to a rival's physical dominance ( $r = .03, ns$ ).

**Spain.** Males' and females' SCO scores were not related to the intensity to which they rated rival characteristics as jealousy evoking. Neither Spanish men nor Spanish women were more inclined to compare themselves to others in response to a rival's social-communal attributes, social power and dominance, physical attractiveness, and physical dominance (all  $ps \geq 0.05, ns$ ).

### Discussion

This study had as its main goal to investigate gender differences in the jealousy-evoking effect of rivals' characteristics in college student samples from two different countries rather different from the Netherlands, where most of the research on rival characteristics and jealousy has been conducted. In contrast to previous studies that investigated the jealousy-evoking nature of a limited number of theoretically based or intuitively chosen rival characteristics (e.g., Buss et al., 2000; Dijkstra & Buunk, 1998; Hupka & Eshett, 1988), the present research examined all those rival

characteristics that individuals may mention to evoke jealousy. A well-developed scale was used to assess these characteristics (Dijkstra & Buunk, 2002). This instrument was validated for two non-Dutch samples (Argentinean and Spanish), and the analysis yielded a four-factor solution. Two factors were related to physical characteristics of the rival (dominance or attractiveness), and the other two were related to psychological or social attributes (social power and dominance, and social-communal attributes). The “social factors” seem to match people’s beliefs about men and women (Eagly, 1987). Whereas communal characteristics are ascribed more strongly to women (e.g., helpful, kind, interpersonal sensitive), agentic characteristics (e.g., aggressive, ambitious, controlling, independent) are ascribed more strongly to men (Bem, 1974; Jost & Kay, 2005; Maccoby & Jacklin, 1974; Williams & Best, 1990). These psychological characteristics match not only the beliefs that people hold about ideal women and men (e.g., Spence & Helmreich, 1978) but also the beliefs that women and men hold about their ideal selves (e.g., Wood, Christensen, Hebl, & Rothgerber, 1997). However, the other two factors—that both concern men and women’s physical characteristics (physical dominance and physical attractiveness)—have not often been studied by social or personality psychologists interested in stereotypes gender.

Overall, the factor solution obtained was partially consistent with the solution found by Dijkstra and Buunk (2002). While physical attractiveness and physical dominance emerged as factors similar to that obtained by Dijkstra and Buunk, our data do not support the original *social status* factor that was subsumed in our social power and dominance dimension or the seductive behavior factor that was in part mixed with items of the physical dominance dimension. The clustering of characteristics we found is, however, in part similar to those that Fletcher and Overall (2007) found for self-perceived mate value (i.e., open and outgoing, sexy, and status). Nevertheless, the different solution suggests that in Argentina and Spain, individuals tend to have a somewhat different perceptual organization of what constitutes threatening rival characteristics. Since a different factor solution was found in these Latin countries, we decided to shorten the original scale version of the rival’s characteristics and to regroup the items to be consistent with the four dimensions of social and physical attributes obtained. The fact that in the present sample the Dutch factor structure did not result in a valid and reliable factor solution with a clear psychological meaning is perhaps due to the construction method of the original scale, based on open-ended questions to Dutch students and then analyzed via factor analysis procedures (emic approach). An “imposed etics” process of using instruments (applying the same factors obtained in one culture straight in another) might result in invalid factor solutions and results when such a scale is applied in different cultural environments (Berry et al., 2006). Individual differences obtained might result in confounded effects due to cultural differences and not the construct tested itself. To summarize, our factor analysis was a necessary step to make a valid cross-cultural testing of hypotheses on gender differences regarding the jealousy-evoking rival characteristics.

The results obtained regarding gender differences in the jealousy-evoking effect of rival characteristics were in part consistent with what might be expected on the basis of research on mate preferences: Whereas men felt more jealousy than women in response to a rival’s physical dominance, women experienced more jealousy when their rivals were more physically attractive. In other words, men felt more threatened by other men’s physical attributes related to social status (e.g., height, broad shoulders), whereas women felt more threatened when their rival had more attributes signaling health and fertility. These differences were consistent across both countries and were consistent with Dijkstra and Buunk (2002) results. It must be noted that, in part as a consequence of the method Dijkstra and Buunk (2002) followed (i.e., interviewing people about the rival characteristics men and women found important), the items belonging to the physical attractiveness factor refer mainly to features of *female* attractiveness. It thus would not seem so surprising that these features evoked more jealousy among women. However, it is important to establish that these *are* the characteristics that do evoke especially jealousy among women and

that the alternative—having items that would be as relevant for men as well as for women—might obscure actual differences in the importance of particular rival characteristics. A similar argument could be made that the items belonging to the physical dominance dimension items would apply more to men. However, it seems difficult to imagine that—to the extent that physical dominance of the rival plays a role for women—such dominance would be signaled by other features than those included in the factor, such as taller, more muscular, and bigger.

Women responded with more jealousy not only to a physically attractive rival than men did but also—and particularly in the Spanish sample—to a rival who had more social-communal attributes and who had more social power and dominance. The findings for social-communal attributes are easy to interpret: Women would compete particularly on these feminine characteristics with other women. However, unlike what Dijkstra and Buunk found, women responded also with more jealousy to the power and dominance of the rival than men did. This may be in part due to the fact that women responded more jealously overall. However, it is also possible that this finding stems in part from the fact that independence and dominance of women is viewed more negatively in a Latin country such as Spain than in the Netherlands (e.g., Glick et al., 2004). Therefore, Latin women may feel particularly threatened by women who are dominant, as these might be perceived to easily lure their partner away. Nevertheless, it must be kept in mind that among women, a rival's social-communal attributes and next a rival's physical attractiveness were the most jealousy-evoking characteristics. That is, a woman who is pretty and has at the same time all kinds of social skills that men appreciate seems the most threatening rival for women.

Interestingly, also among men social-communal characteristics were the most important jealousy-evoking features of a rival. This is in line with the observation that social skills and sensitivity to the other person's needs are even among chimpanzees important features in attracting a mate, and thus in evoking jealousy in rivals (De Waal, 1996). In addition to such characteristics, among men a rival's social power and dominance was the most jealousy-evoking characteristic. Thus, for men a rival who is powerful and dominant and who at the same time possesses affability characteristics (e.g., sweeter, sense of humor, sensitive, attentive) seems the most jealousy evoking. Even though strategies related to social dominance are in general important for men in climbing up the social ladder and may be observed in other primates as well (De Waal, 1996), the results obtained here are quite consistent with the value orientations found in Latin American societies (Diener et al., 2000; Hofstede, 2001). Men in more collectivistic societies have to use social dominance and power combined with smoother characteristics to go ahead in life. If they also don't have these agreeable aspects, they are at risk of being considered aggressive—an individualistic characteristic not highly valued in collectivist countries.

Our study also explored the relationship between individual's social comparison orientation (SCO; Buunk et al., 2005; Gibbons & Buunk, 1999) and the jealousy-evoking effect of rival characteristics. We found that in Argentina those who tend to compare themselves with others find all rival characteristics more jealousy evoking (cf., Schmitt, 1988). We found this especially for men and less so for women. However, women with a high SCO responded more jealously to rivals high in social power and dominance, attributes not related to mating choices for men. This seems inconsistent with previous studies suggesting that women tend to compare themselves with other women particularly in the domain of physical attractiveness (e.g., Joseph, 1985; Wade & Abetz, 1997). In Spanish participants, we did not find such relationships between SCO and the jealousy-evoking nature of rival characteristics. One explanation would be the different nature of the sample of students involved. There may also be differences between the two countries not captured in this study.

This study contributes to the cross-cultural validation of findings on jealousy in countries quite different from the Netherlands. In general, we found a number of similar results as in previous studies (see Buunk et al., 2007). Cross-cultural findings are important for establishing the validity

and conditional nature of evolutionary hypotheses. Nevertheless, even though Spain and Argentina differ considerably from the Netherlands, we found a number of similar gender differences in the nature of jealousy-evoking effects of rival characteristics. We also found some gender differences that were not found in the Netherlands, suggesting that in Latin cultures the nature of threatening rival characteristics may differ somewhat from a Western European country like the Netherlands. Evolutionary hypotheses are sometimes misinterpreted as implying rigid and instinctual behaviors that suggest that the individual is oblivious to the social environment. Clearly in the case of jealousy, mechanisms are sensitive to sociocultural conditions, even though the particulars (or emics) of these cultural conditions are not yet well known.

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The authors declare that they do not have any conflict of interest.

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## **Bios**

**Abraham P. Buunk** is an Academy Professor on behalf of the Royal Netherlands of Arts and Sciences and a professor in the Department of Social and Organizational Psychology at the University of Groningen.

**Alejandro Castro Solano** is a professor in the Department of Psychology at the University of Palermo, Argentina.

**Rosario Zurriaga** is a professor in the Department of Social Psychology at the University of Valencia, Spain.

**Pilar González** is a professor in the Department of Social Psychology at the University of Valencia, Spain.