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Biological Sex and Psychological Gender Differences in the Experience and Expression of Romantic Jealousy

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Abstract

Romantic jealousy is a multidimensional response to a perceived threat to one's relationship or self-esteem and the specific emotions experienced in the process are complex and interrelated, affecting one another. Many researchers focus on jealousy-related sex differences, however there are few studies exploring gender-specific jealousy. The current study investigated whether individuals representing various types of biological sex and psychological gender differ in their experience and expression of romantic jealousy. The study involved 367 subjects (213 women, 154 men) ranging in age from 18 to 40 years. The assessments were carried out using the Psychological Gender Inventory based on gender schema theory, proposed by Bem, and the author's own Questionnaire on the Emotion of Romantic Jealousy. The results of MANOVA showed associations between romantic jealousy and both biological sex and psychological gender, however efforts to save the relationship appear to be the only gender-differentiated response to jealousy. Those with a high level of feminine traits are more likely to take action to preserve their relationships. Overall negative emotions elicited by a partner's infidelity are stronger in women and in feminine individuals. The results confirm it is necessary to take psychological gender into account in research focusing on jealousy. The findings, however, do not support claims suggesting that men and masculine individuals tend to respond with stronger aggression to a partner's infidelity, as proposed in the literature.

Keywords

romantic jealousy, jealousy components, biological sex and jealousy, psychological gender and jealousy, experience and expression of jealousy

Highlights

- Research shows that jealousy is associated with both biological sex and psychological
 gender, and these links are related to the general level of jealousy, intensity of
 emotions experienced in connection to jealousy and expression of jealousy.
- Although many researchers investigate between-sex differences in jealousy, few studies take into account psychological gender in this context.
- The author decided to develop her own jealousy questionnaire designed to assess individual emotions, thoughts and behaviours occurring in the context of jealousy, which would be specific to Polish people.
- The study shows that both biological sex and psychological gender are associated with romantic jealousy.

According to White (1981), jealousy may be defined as a complex of interrelated emotions, thoughts and behaviours elicited by a perceived threat to one's self-esteem and/or to the quality or existence of a relationship. This threat is associated with a potential rival because, by establishing a relation with one's partner, the rival may contribute to deterioration of the quality of the bond, or the relationship's breakup. The threat does not have to be real; indeed, jealousy also occurs in response to imaginary rivals (Hupka, 1991; White, 1981). Jealousy may emerge in any relationship, and it is possible to distinguish romantic and non-romantic jealousy. The former occurs when one's highly valued relationship with a romantic partner is threatened. The latter occurs in non-romantic relationships, and may take such forms as rivalry between siblings, conflicts between parents and children (Hart, 2013), as well as jealousy concerning a friend, a superior at work, or a teacher (Parrott, 1991).

Romantic Jealousy

It has been suggested that experience and expression of romantic jealousy differ depending on the real or imaginary presence of a rival (Buunk & Fernandez, 2020; Parrott, 1991; Pines, 2016; Rydell & Bringle, 2007). A response to actual betrayal involves very strong emotions, mainly anger and sadness. The emotional response is abrupt and violent, yet it passes over time. This kind of jealousy is referred to as reactive (Buunk & Fernandez, 2020; Rydell & Bringle, 2007), acute (Pines, 2016), or *fait accompli* (Parrott, 1991). This is a similar approach to understanding jealousy as in the typology of emotional jealousy proposed by Pfeiffer and Wong (1989), with an important difference lying in the fact that the latter concept is linked to the intensity of emotions experienced in connection



to jealousy, whereas the concept of reactive or acute jealousy assumes co-existence of cognitive, emotional and behavioural components. If it is not clearly evident that a rival exists, jealousy is mainly manifested by suspicions or ruminations related to possible infidelity, as well as by uncertainty and anxiety. This type of jealousy tends to be less intense but more persistent. It is also described as chronic (Pines, 2016), suspicious (Parrott, 1991; Rydell & Bringle, 2007), and anxious (Buunk & Fernandez, 2020). It may also be manifested by behaviours aimed to control or spy on the partner; in this case it is referred to as preventive jealousy (Buunk & Fernandez, 2020). This type of jealousy is also frequently seen as a personality variable, i.e., a permanent tendency to respond with jealousy. Likewise, research by Gehl and Watson (2003) showed three types of jealousy, including reactive jealousy and two types reflecting jealousy understood as a variable disposition.

Furthermore, some researchers have proposed a distinction between sexual and emotional jealousy (Buss, 2018). Sexual jealousy occurs as a response to a real or potential betrayal in the context of physical (sexual) contacts only. Emotional jealousy, on the other hand, is related to the partner's emotional engagement with a rival, with no sexual activity involved. From an evolutionary perspective, women and men differ in their reproductive biology and mating strategies, due to which different situations elicit stronger jealousy. Men manifest stronger jealousy in response to sexual infidelity, while women tend to respond with stronger jealousy to emotional infidelity (Bendixen et al., 2015; Buss, 2018; Kennair et al., 2011; Sagarin et al., 2012; Valentova et al., 2020). Women are more jealous when faced with emotional betrayal because they fear that, once he falls in love with another woman, a man is more likely to invest resources in a relationship with the rival. Men are more jealous in response to sexual betrayal because, resulting from their partner's sexual involvement with a rival, they may face a need to invest in non-biological offspring (Buss, 2018).

Most authors consider jealousy as a blend of basic-level emotions. Central to reactive jealousy are the feelings of anger, sadness, fear and anxiety (Fussell & Stollery, 2012; Hansen, 1991; Parrott, 1991; Pines, 2016; Rickert & Veaux, 2016; Turner & Stets, 2005; White & Mullen, 1989). These emotions are most frequently discussed in research reports, and referred to by theoreticians. However, according to the related literature, far more emotions are associated with jealousy, e.g., the feeling of being betrayed (Fussell & Stollery, 2012; Parrott, 1991; Rickert & Veaux, 2016), resentment (Pines, 2016; White & Mullen, 1989), threat (Fussell & Stollery, 2012; Parrott, 1991), loneliness (Parrott, 1991), rejection (Parrott, 1991; Protasi, 2017), suspicion and distrust (Protasi, 2017), disappointment (Hupka, 1991), pain (Pines, 2016).

The feelings experienced in connection to jealousy depend on those aspects of the situation that individuals turn their attention to, and on their convictions related to that situation (Parrott, 1991; Rydell & Bringle, 2007; White & Mullen, 1989). If they concentrate on the sense of loss, they will feel sadness; if they focus on their partner's



misconduct or infidelity, they will feel angry or hurt (Parrott, 1991). On the other hand, fear or anxiety will occur if individuals feel their own inadequacy (Parrott, 1991) or uncertainty about the future of the relationship, and a sense that they cannot cope with the threat (Rydell & Bringle, 2007). Other related aspects discussed by researchers include frequent use of violence against the partner, prompted by jealousy (Buss & Duntley, 2011; Guerrero et al., 2011), efforts to induce jealousy in the partner, as well as aggressive behaviours towards the rival (Guerrero et al., 2011; White & Mullen, 1989). On the other hand, an encounter with a rival may also provide motivation to improve the quality of one's relationships, and to change one's behaviour towards the partner (Bryson, 1991; Guerrero et al., 2011; Pines, 2016; White & Mullen, 1989).

Gender Schema Theory

The literature distinguishes the concepts of sex and gender, the former referring to the differences between men and women linked to biological factors, and the latter relating to social and cultural differences. Earlier theories treated femininity and masculinity as the opposite elements of the same dimension (Terman & Miles, 1936). This approach changed in the 1970s, after Bem (1974) proposed her gender schema theory. According to Bem, the dimensions of femininity and masculinity are independent from each other, and the masculinity-femininity dichotomy is an artefact. In line with that theory, she developed a tool enabling measurement of the sex roles. The Bem Sex-Role Inventory differed from earlier femininity-masculinity scales as it comprised a separate scale for measurement of masculinity and a separate scale for measurement of femininity. The masculinity scale comprised such traits as assertiveness, aggressiveness, as well as a tendency to dominate and compete, while the femininity scale took into account such traits as joyfulness, gentleness, loyalty and shyness.

Bem (1974) demonstrated that masculinity and femininity are independent in empirical terms – correlations between these dimensions were statistically nonsignificant. In accordance with gender schema theory, schematicity means readiness to sort information based on certain dimensions, despite other existing dimensions, which could also provide the basis for categorisation. With reference to psychological gender this means sorting attributes and behaviours into feminine and masculine, or equivalent, e.g., assignment of the trait "eagle" to the category of masculinity. Gender-related connotations are meaningful for schematic individuals (Bem, 1982); these in turn are described as sex-typed. People classified display behaviours which are typical for the relevant psychological gender as sex-typed, and show a generalised tendency for perceiving the world in the categories of femininity and masculinity. On the other hand, aschematic individuals are non-sex-typed. These include people presenting a combination of highly feminine and masculine characteristics, referred to as androgynous type, and individuals with a low level of masculinity and femininity, or undifferentiated type. These people are less likely to see roles as they are traditionally attributable to men or women (Bem et al., 1976).



Biological Sex and Jealousy

Many researchers in their theoretical considerations and empirical studies have focused on jealousy observed in the context of romantic relationships. Despite that, various aspects of jealousy continue to be investigated. The specific issues widely discussed in the literature include sex differences in the context of emotional and sexual jealousy. Much research supports the hypothesis that women are more distressed in response to emotional infidelity, whereas men are more upset when faced with sexual infidelity (Bendixen et al., 2015; Buss, 2018; Kennair et al., 2011; Valentova et al., 2020). However, some authors suggest that sex differences in sexual and emotional jealousy do not occur in continuous-rating scale studies, but only in forced-choice studies (DeSteno et al., 2002). Conversely, a recent meta-analysis shows that sex differences are robust irrespective of the measures applied (Bendixen et al., 2015; Edlund & Sagarin, 2017; Sagarin et al., 2012).

Fussell and Stollery (2012) reported more violent thoughts towards the rival and a greater tendency to express dislike and hatred of the partner among men in the case of fait accompli jealousy, when sexual infidelity had taken place. In male subjects, sexual infidelity more often led to a loss of trust, distancing from the partner as well as the end of the relationship. Women more often stayed committed to the relationship in the face of sexual betrayal and tried to identify reasons for their partner's infidelity, including those linked to their own behaviour. Another study (Guerrero & Reiter, 1998) suggests that, in the face of infidelity, men more frequently report rival contacts while women more commonly report integrative communication and negative affect expression. General intensity of negative emotions in the presence of an actual rival is greater for women than for men (Bryson, 1991; Buunk & Fernandez, 2020; Croucher et al., 2012); women are also more likely to express their jealousy, to manifest feelings related to it, and to discuss the situation (Aylor & Dainton, 2001; Croucher et al., 2012; Lans et al., 2014). Various suspicions about one's partner and a rival are more typical for men than for women (Aylor & Dainton, 2001; Croucher et al., 2012), however some authors (Lans et al., 2014) reported this dimension of jealousy to be more pronounced in women; similarly, Buunk and Fernandez (2020) reported that anxious jealousy was more common among women.

Psychological Gender and Jealousy

Many researchers investigate between-sex differences in jealousy. However, few studies have taken psychological gender in this context into account. Bringle et al. (1977) reported evidence showing a greater propensity for jealousy displayed by individuals presenting more behaviours which are typical for women. Another study (White & Mullen, 1989) suggests that feminine individuals are most dependent on their partners, and their self-esteem relies on information received from the partners.



Earlier research shows that psychological gender is also associated with expression of jealousy (Aylor & Dainton, 2001; Telesco, 2001). In the study by Aylor and Dainton (2001), the dimension of masculinity/instrumentality was shown to correlate positively with possessiveness, violence, manipulation, rival contacts and distributive communication. On the other hand, the dimension of femininity/expressiveness was found to be positively correlated to prosocial expression of jealousy, integrative communication, and negatively linked to active distancing, manipulation and violence. It is also possible to observe certain associations between psychological gender and jealousy experience. Higher feminine traits correspond to stronger emotions, particularly anger, anxiety and sadness, experienced in response to perceived emotional and sexual infidelity, and in the case of emotional betrayal these also include envy and guilt. A higher level of masculinity corresponds to less pronounced feelings of anxiety and guilt in the face of perceived emotional infidelity, or sadness and guilt in the case of sexual betrayal (Banaszkiewicz, 2018). The dimension of femininity is associated with stronger jealousy among lesbian women (Telesco, 2001).

Research shows that, irrespective of biological sex, psychological masculinity is associated with greater distress in response to perceived sexual infidelity. Higher feminine traits correspond to more negative feelings in the case of emotional infidelity (Bohner & Wänke, 2004; Canto et al., 2012). Similarly, it has been demonstrated that individuals oriented towards traditional gender roles, i.e., feminine and masculine, respond with stronger jealousy compared to people oriented towards non-traditional roles, i.e., androgynous or undifferentiated individuals (Hansen, 1982, 1991), although other researchers reported there are no differences relative to one's gender-role orientation (Demirtaş & Dönmez, 2006).

Present Study

Earlier research shows that jealousy is associated with both biological sex (e.g., Bendixen et al., 2015; Bryson, 1991; Buss, 2018; Buunk & Fernandez, 2020; Croucher et al., 2012; Fussell & Stollery, 2012; Guerrero & Reiter, 1998) and psychological gender (Aylor & Dainton, 2001; Banaszkiewicz, 2018; Hansen, 1982, 1991; Telesco, 2001), and these links are related to the general level of jealousy, intensity of emotions experienced in connection to jealousy as well as expression of jealousy. Previous research has focused on measuring the emotional component of jealousy (i.e., Bohner & Wänke, 2004; Canto et al., 2012) or on investigating jealousy expressed in a constructive or destructive manner (Aylor & Dainton, 2001). It should also be pointed out that, when measuring the intensity of the emotional aspect of jealousy, the authors most commonly did not take into account the diversity of the related emotions, and they did not measure the intensity of the specific emotions that arose (i.e., fear, sadness, anger, loneliness), but only the overall level of discomfort or distress when a rival appears.



Jealousy is a complex response involving a variety of feelings and thoughts, and consequently behaviours, as well (Chung & Harris, 2018; Pfeiffer & Wong, 1989; White, 1981; White & Mullen, 1989). Hence, rather than separately, the specific components of jealousy occur in combination, constituting a profile which reflects jealousy experience and expression. Researchers emphasise that the pattern of emotions, thoughts and behaviours associated with jealousy is a highly individual matter (White & Mullen, 1989), hence large diversity can be expected in the experience and manifestation of jealousy. Jealousy is a complex emotion. Central to reactive jealousy are feelings of anger, sadness, fear and anxiety, but a large variety of other emotions and feelings can occur besides these (Fussell & Stollery, 2012; Hansen, 1991; Parrott, 1991; Pines, 2016; Protasi, 2017; Rickert & Veaux, 2016; Turner & Stets, 2005; White & Mullen, 1989). Moreover, different emotions are accompanied with different thoughts about oneself, one's partner, the rival, or the relationship, leading to a constructive or destructive manifestation of jealousy (Parrott, 1991; Rydell & Bringle, 2007; White & Mullen, 1989). This diversity of thoughts appearing in situations involving jealousy is also very rarely taken into account in research. In the present study, jealousy is understood as a complex of various emotions, thoughts and behaviours prompted by an encounter with a rival (White, 1981; White & Mullen, 1989), which corresponds to the definitions of reactive jealousy (Buunk & Fernandez, 2020; Rydell & Bringle, 2007), acute (Pines, 2016) or fait accompli jealousy (Parrott, 1991). The present study takes into account the emotions that arise in jealousy, the thoughts accompanying them, and the behaviours exhibited in connection to jealousy. Hence, in this case the measurement of jealousy includes the experience and expression of jealousy, but with regard to the variation in specific emotions, thoughts, and behaviours. The study has been designed to investigate whether biological sex and psychological gender are associated with jealousy experience and expression in romantic relationships, but it takes into consideration the complexity of jealousy emotions, thoughts and behaviours. There are very few studies that, in this context, take into account both biological sex and psychological gender (Aylor & Dainton, 2001; Bohner & Wänke, 2004) and the interaction between these. In these studies, as mentioned above, the complexity of jealousy experience (i.e., diversity of feelings and thoughts) was not considered.

Five hypotheses were formulated based on earlier studies. In the literature it has been reported that women are more likely to present more intense negative emotions in the presence of an actual rival (Bryson, 1991; Buunk & Fernandez, 2020; Croucher et al., 2012) and they tend to express stronger jealousy (Aylor & Dainton, 2001; Croucher et al., 2012; Lans et al., 2014) compared to men. More integrative communication and negative affect expression are specific for women (Guerrero & Reiter, 1998) while violent thoughts towards the rival and a greater tendency to express dislike and hatred of the partner are stronger in men (Bryson, 1991; Fussell & Stollery, 2012). Therefore, Hypothesis 1 assumed that the general level of jealousy, intensity of emotional components of jealousy and integrative actions aimed at preserving the relationship would be higher in women



than in men, and Hypothesis 2 assumed that the intensity of aggressive thoughts and actions would be greater in men, compared to women.

In the literature it has also been proposed that psychological femininity intensifies both the feelings experienced in connection to jealousy (Banaszkiewicz, 2018) and the overall level of jealousy (Telesco, 2001). Femininity is also positively related to integrative actions and negatively to distributive actions. Masculinity is positively correlated with expression of possessiveness, violence, manipulation and rival contacts, as well as distributive communication (Aylor & Dainton, 2001) and negatively associated with feelings of anxiety, sadness and guilt (Banaszkiewicz, 2018). Furthermore, it has been suggested that stronger jealousy is experienced by individuals oriented towards traditional gender roles, compared to people with no gender-role orientation (Hansen, 1982, 1991). Therefore, Hypothesis 3 assumed that overall jealousy would be most intense among feminine individuals and least intense among androgynous and undifferentiated individuals. Hypothesis 4 assumed that the intensity of emotional components of jealousy and integrative actions aimed at preserving the relationship would be higher in feminine individuals. Hypothesis 5 assumed that aggressive thoughts and actions would be more commonly displayed by masculine individuals.

Method

Participants

The study involved subjects who, at the time of the research, were in formal or informal romantic relationships, or were dating but the relationship could not be described as committed. Initial data were collected from 503 individuals (277 women, 226 men). The participants were recruited among students attending Maria Curie-Sklodowska University in Lublin, Medical University in Lublin, University of Information Technology and Management in Rzeszow and the State School of Higher Education in Chelm and among participants attending classes at the Centre for Physical Culture of Maria Curie-Sklodowska University in Lublin. The study disregarded information collected from individuals who reported they were single and were not dating anyone (n = 127), and those who failed to report the status of their relationship (n = 9). Also, individuals who reported they were homosexual or bisexual were excluded from the study. Ultimately, the group comprised 367 heterosexual subjects (including 213 women and 154 men) ranging in age from 18 to 40 years (M = 23.80, SD = 5.11). Most subjects reported secondary education (48.5%); the number of individuals with higher (25.9%) and incomplete higher education (25.1%) was similar. Only .5% of the subjects reported primary education. As for the types of relationships represented by the subjects, the largest group reported involvement in informal relationships (54.5%), in other words committed relationships with no plans for getting married. Married individuals accounted for 16.6%, whereas 15.5% of the subjects



were engaged. On the other hand, 13.4% of the subjects admitted they were dating, but were not in committed relationships. The participants were categorised into four types of psychological gender, depending on their feminine and masculine traits. The classification was based on median scores of a referential normative group (Kuczyńska, 1992). As a result, the group comprised 102 feminine, 53 masculine, 181 androgynous and 31 undifferentiated subjects. The feminine psychological gender group consisted of 77 women and 25 men; the masculine psychological gender group comprised 23 women and 30 men; in the androgynous psychological gender group there were 96 women and 85 men; the undifferentiated gender group comprised 17 women and 14 men.

Procedure and Materials

Psychological Gender

The Psychological Gender Inventory by Kuczyńska (1992) was employed to assess the types of psychological gender. The tool is mainly based on gender schema theory proposed by Sandra Bem (1974, 1981). It comprises 35 items, including 15 items covering the cultural stereotype of femininity, and 15 addressing the cultural stereotype of masculinity. The remaining 5 items comprise neutral traits, equally often attributed to men and to women; these provide a buffer component, and are disregarded in the final score. Using a 5-point rating scale, the subjects determine to what degree the specific items describe them. The total scores for the responses related to the respective cultural stereotypes of masculine gender and feminine gender provide measurements in two separate scales for psychological masculinity, and psychological femininity. By comparing the subjects' scores to the median scores obtained on the femininity and masculinity scales by a referential normative group, it is possible to allocate the subjects to the specific types of psychological gender, following the criteria below:

- low masculinity, high femininity: feminine psychological gender,
- · low femininity, high masculinity: masculine psychological gender,
- high femininity, high masculinity: androgynous psychological gender,
- low femininity, low masculinity: undifferentiated psychological gender.

In the original study by Kuczyńska (1992), the reliability measured with Cronbach's alpha was .79 for the femininity scale, and .79 for the masculinity scale. The accuracy was confirmed by comparing university students to type F/M transgender individuals. The results of the transgender subjects were more similar to the scores obtained by men compared to women. A more recent study with the use of this tool demonstrated that its accuracy and reliability were good, and the characteristics of femininity and masculinity applied in the tool were still valid (Błajet, 2019; Korzeń, 2006). In the current study, the internal consistency of the masculinity and femininity scales amounted to α = .82 and α = .76, respectively. The correlation between the masculinity and femininity scales was statistically nonsignificant, r = -.02, p = .736.



Romantic Jealousy

The measurement of romantic jealousy was performed with the specially designed Questionnaire on the Emotion of Romantic Jealousy. The tool measures the overall intensity of romantic jealousy experienced when one is faced with a rival, and it assesses four aspects of the emotion, i.e., emotional devastation and focus on infidelity, low self-esteem and sense of guilt, efforts to save the relationship, and vengeful aggression. The structure of the questionnaire is based on the definition of jealousy proposed by White (1981), so in the current study jealousy is understood as a complex of emotions, thoughts and behaviours resulting from an encounter with a rival. It follows from the definition (White, 1981) that, in order to determine the structure of jealousy, it is necessary to take into account the emotions, thoughts and, consequently, behaviours associated with jealousy. Notably, the emotions, thoughts and behaviours emerging when one is faced with a rival can be culture-specific. Given this, the author decided to develop her own jealousy questionnaire designed to assess individual emotions, thoughts and behaviours occurring in the context of jealousy, which would be specific to Polish people. The first stage of the study involved a group of 111 subjects (72 women, 39 men) ranging in age from 19 to 50 years. The following instruction was presented to the participants: "Think about an important relationship you are currently in, you were in earlier, or you would like to be in. Imagine that your partner is showing interest in another person of the opposite sex (e.g. he/she keeps talking about another person, kisses another person, looks with affection at another person, etc.). What do you feel, think and do in such a situation?" The participants could enter as many different emotions, thoughts and behaviours as they wanted. Based on the responses from this stage of the study, 64 questionnaire items were specified. At the next stage, the factor structure was determined, based on two factor analyses conducted for independent groups. The subjects received the same instructions and provided responses on a 5-point scale. The first group comprised 192 subjects (113 women and 79 men) and the second group consisted of 503 subjects (277 women, 226 men). Oblimin rotation was employed because of the strong interdependence of various emotions, thoughts and behaviours in the context of jealousy (White, 1981). In both factor analyses, the scree-plot suggested 4-factor solution. The items that did not load any factor (component loadings below 0.4) were removed, and ultimately 49 items were used in the questionnaire. The final results of the factor analyses are presented in Supplementary Materials File 1: Factor analyses of Questionnaire on the Emotion of Romantic Jealousy. The questionnaire is included as an Appendix. Given the content of the items included, the specific factors were named as follows: emotional devastation and focus on infidelity, low self-esteem and sense of guilt, efforts to save the relationship, and vengeful aggression.

The factor 'emotional devastation and focus on infidelity' contains mainly negative emotions emerging when one is faced with a rival, most importantly anger, sadness and the like. Other associated responses include a feeling of being betrayed, thoughts about



ending the relationship, and anger towards the rival. The factor of 'low self-esteem and sense of guilt' reflects tendencies for self-blame and for self-deprecating comparisons with the rival, as well as experience of fear, helplessness, and a sense of inferiority. The factor defined as 'efforts to save the relationship' reflects the person's integrative actions aimed at preserving the relationship, and at turning the situation for the benefit of the relation. 'Vengeful aggression' reflects an aggressive attitude towards the partner and/or rival, i.e., a desire to fight, to humiliate, take revenge, and induce jealousy in the partner. The indicators for the separate jealousy factors were the average scores obtained within a given factor. Items within the factor were summed and divided by the number of those items.

Cronbach's alpha computed for the components of jealousy shows high reliability. In various study groups it is in the range from .94 to .97 for emotional devastation and focus on infidelity, from .73 to .88 for efforts to save the relationship, from .93 to .97 for low self-esteem and sense of guilt and from .65 to .86 for vengeful aggression. Cronbach's alpha computed for the general intensity of romantic jealousy range from .94 to .98. The accuracy of the tool was confirmed by its correlations to the Multidimensional Jealousy Scale (MJS), originally developed by Pfeiffer and Wong (1989). There were moderate positive correlations between MJS and all the components of the questionnaire, except for the factor of efforts to save the relationship. The criterion accuracy was verified by comparing the normative reference group to a group of subjects involved in polyamorous and open relationships where, as anticipated, the level of all the components of jealousy was significantly lower.

Results

A 2 (biological sex) \times 4 (psychological gender) between-subjects MANOVA was carried out to compare jealousy differences among men and women representing feminine, masculine, androgynous and undifferentiated gender. All the *post hoc* tests were Bonferroni corrected and their adjusted *p*-values are reported. Descriptive statistics for the Questionnaire on the Emotion of Romantic Jealousy are presented in Table 1.

 Table 1

 Descriptive Statistics for the Questionnaire on the Emotion of Romantic Jealousy

Components of jealousy	Min	Max	М	SD
emotional devastation and focus on infidelity	1	5	4.07	0.91
efforts to save the relationship	1	5	3.11	0.91
low self-esteem and sense of guilt	1	5	3.53	1.07
vengeful aggression	1	5	2.21	1.09
general intensity of romantic jealousy	1.04	5	3.50	0.76

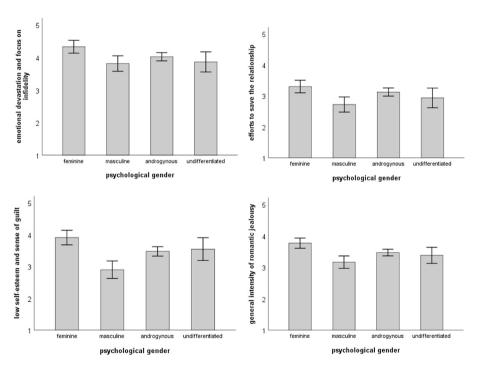


There were three main effects of biological sex: emotional devastation and focus on infidelity, F(1, 359) = 9.91, p = .002, $\eta_p^2 = .03$; low self-esteem and sense of guilt, F(1, 359) = 8.30, p = .004, $\eta_p^2 = .02$; and general level of jealousy, F(1, 359) = 9.46, p = .002, $\eta_p^2 = .03$. Women scored higher on emotional devastation and focus on infidelity (M = 4.24, SD = 0.74) than men (M = 3.83, SD = 1.06); they also scored higher on low self-esteem and sense of guilt (M = 3.72, SD = 1.00) than men (M = 3.27, SD = 1.10). General level of jealousy was also higher for women (M = 3.64, SD = 0.65) than for men (M = 3.32, SD = 0.85).

There were four main effects of psychological gender: emotional devastation and focus on infidelity, F(3, 359) = 4.39, p = .005, $\eta_{\rm p}^2 = .04$; efforts to save the relationship, F(3, 359) = 4.78, p = .003, $\eta_{\rm p}^2 = .04$; low self-esteem and sense of guilt, F(3, 359) = 10.32, p < .001, $\eta_{\rm p}^2 = .08$; and general level of jealousy, F(3, 359) = 7.57, p < .001, $\eta_{\rm p}^2 = .06$ (see Figure 1).

Figure 1

Comparison of Mean Scores for Feminine, Masculine, Androgynous and Undifferentiated Subjects



Note. Error bars are 95% confidence intervals.

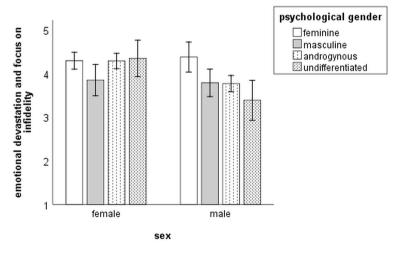


Feminine subjects (M = 4.30, SD = 0.62) scored higher on emotional devastation and focus on infidelity than masculine subjects (M = 3.81, SD = 1.01), p = 0.01. Feminine subjects (M = 3.34, SD = 0.90) scored higher on efforts to save the relationship than masculine subjects (M = 2.70, SD = 0.81), p = 0.001. Androgynous subjects (M = 3.12, SD = 0.93) also scored higher on efforts to save the relationship compared to masculine subjects (M = 2.70, SD = 0.81), p = 0.031. Masculine subjects (M = 2.88, SD = 1.04) scored lower on low self-esteem and sense of guilt than feminine subjects (M = 3.94, SD = 0.95), p < .001; androgynous subjects (M = 3.48, SD = 1.07), p = .001 and undifferentiated subjects (M = 3.58, SD = 0.86), p = .014. Feminine subjects scored higher on low self-esteem and sense of guilt (M = 3.94, SD = 0.95) than androgynous subjects (M = 3.48, SD = 1.07), p = .002. General level of jealousy was higher in feminine subjects (M = 3.76, SD = 0.60) compared to androgynous (M = 3.48, SD = 0.79), p = .018 and masculine subjects (M = 3.15, SD = 0.83), p < .001 and in androgynous subjects (M = 3.48, SD = 0.79) compared to masculine subjects (M = 3.15, SD = 0.83), P < .001 and in androgynous subjects (M = 3.48, SD = 0.79) compared to masculine subjects (M = 3.15, SD = 0.83), P = .042.

There was a significant interaction for emotional devastation and focus on infidelity, F(3, 359) = 3.83, p = .01, $\eta_p^2 = .03$ (see Figure 2). Feminine subjects scored higher on emotional devastation and focus on infidelity (M = 4.37, SD = 0.51) than androgynous (M = 3.76, SD = 1.17), p = .014 and undifferentiated subjects (M = 3.38, SD = 0.92), p = .005 but only within the group representing male sex.

Figure 2

Comparison of Mean Scores on Emotional Devastation and Focus on Infidelity for Feminine, Masculine, Androgynous and Undifferentiated Subjects in Female and Male Groups



Note. Error bars are 95% confidence intervals.



Discussion

The aim of this study was to investigate whether women and men representing varied types of psychological gender differ in the way they experience and express jealousy in their intimate relationships. The results show that both biological sex and psychological gender are associated with romantic jealousy. Women and feminine individuals are more likely to respond with stronger jealousy, but gender-specific differences do not result exclusively from between-sex differences. The analysis showed that biological sex explains the unique variance in the general level of jealousy and its two components, whereas psychological gender explains the unique variance in the general level of jealousy and its three components. The gender-differentiated factors include efforts to save the relationship. Feminine individuals, irrespective of biological sex, are more likely to undertake integrative actions aimed at preserving the relationship. Some interactions between biological sex and psychological gender have also been identified. Feminine individuals representing male sex respond with stronger anger, sadness, feeling of betrayal, thoughts about ending the relationship, and anger towards the rival compared to androgynous and undifferentiated individuals.

The current findings only partly support Hypothesis 1. Consistent with prior research examining sex differences in jealousy (Bryson, 1991; Buunk & Fernandez, 2020; Croucher et al., 2012), the results of this study suggest that the general intensity of negative emotions in reaction to an actual rival is stronger in women than in men. Women respond with stronger anger, sadness, grief, feeling of betrayal, fear, as well as a sense of helplessness, and loneliness. Women are more likely to blame themselves for their partner's infidelity, compare themselves to the rival and experience a feeling of inferiority, which is consistent with prior research findings (Fussell & Stollery, 2012). Fussell and Stollery (2012) reported that in the face of betrayal and in an attempt to forgive their partner, women seem to engage in a kind of dissonance-reduction exercise by finding reasons for their partner's infidelity, and trying to determine in what way their own behaviour might have contributed to the infidelity. In the current study no sex differences were found in efforts aimed to save the relationship. Moreover, no sex differences were found in the level of aggression towards the partner and the rival, therefore the findings did not support Hypothesis 2. This is in conflict with earlier research findings (Bryson, 1991; Fussell & Stollery, 2012; Guerrero & Reiter, 1998) showing that aggression in response to a partner's infidelity was stronger in men, whereas the tendency for integrative communication was stronger in the case of women. It is possible that sex differences in specific positive or negative behaviours vary across cultures. Bryson (1991) reported that actions aimed to preserve one's relationship, e.g., attempts to become more attractive to one's partner and trying to improve one's relationship, differ across nationalities but only slightly between women and men. Moreover, in the Unites States, women were more likely to make an effort to improve their relationships than men, but in Germany or the Netherlands women were less likely to take this kind of action. Aggressiveness



in response to a partner's infidelity also differs across nationalities. In the United States men tend to be more aggressive, while in France or Germany there are no sex differences related to this factor. Cultural differences need to be further investigated, as Bryson conducted his study 30 years ago, and up-to-date research is necessary.

The current findings only partly support Hypothesis 3. The current study shows that expression of jealousy is weaker in masculine subjects than in feminine subjects. These findings contradict the observations reported by Hansen (1982, 1991), but they are consistent with conclusions presented by Demirtaş and Dönmez (2006) and reflect the negative association between masculinity and feelings experienced in connection to jealousy, described elsewhere (Banaszkiewicz, 2018). There were some differences between the androgynous psychological gender group and feminine as well as masculine psychological gender groups. In androgynous individuals, jealousy expression was stronger than in masculine subjects, and weaker than in feminine individuals. These differences appear to be associated with the high level of both femininity and masculinity rather than with an orientation towards non-traditional gender roles. There were also some gender-specific differences in the male sex group. Feminine individuals presented a higher level of emotional devastation and focus on infidelity compared to androgynous and undifferentiated individuals. Given the fact that masculine individuals did not differ from androgynous or undifferentiated subjects, these differences also cannot be linked to the orientation towards traditional or non-traditional gender roles.

The current findings support Hypothesis 4. The study shows that feminine subjects experience the strongest emotions in response to infidelity; these include anger, frustration, rage, as well as sense of being cheated and deceived. An encounter with a rival largely intensifies their feelings of fear, helplessness, and loneliness. Feminine subjects are also most likely to compare themselves to the rival, and to blame themselves for the partner's infidelity. Compared to masculine subjects, feminine and androgynous individuals also make a greater effort to preserve the relationship, and to divert their partner's attention from the other person. This is consistent with other research findings related to jealousy experience and expression by individuals with high femininity traits (Aylor & Dainton, 2001; Banaszkiewicz, 2018; Bringle et al., 1977; Telesco, 2001). If feminine individuals are most dependent on their partners, and their self-esteem is based on information received from theirs partners (White & Mullen, 1989), they will go to great lengths to retain the partner once their relationship is threatened. Furthermore, the partner's fascination with someone else may be perceived as an attempt to convey a desire to end the relationship or as a way to imply the individual's deficiencies, which contributes to poor self-esteem and a sense of guilt. It has also been pointed out that a threat to one's self-esteem is an important factor promoting jealousy (Chung & Harris, 2018; White, 1981; White & Mullen, 1989). Hence, in the case of feminine individuals, jealousy is not only induced by a threat to the relationship, but also to a large extent by a



threat to their self-confidence. Their typical response to both of these involves a strategy to improve the relationship.

The current study did not identify any between-gender differences in aggression toward one's partner and the rival, therefore Hypothesis 5 was not supported. These findings contradict the previously reported association of psychological masculinity with violence, manipulation and distributive communication (Aylor & Dainton, 2001). Notably, however, in the study by Aylor and Dainton (2001) the correlations of the dimension of masculinity with violence, manipulation, possessiveness and distributive communication were statistically significant, however their strength was very weak. It is possible the associations between these behaviours and psychological masculinity are rather insignificant. Importantly, jealousy emerges if we are convinced that our Self to a degree is shaped by our partner (Ben-Ze'ev, 2013; Parrott, 1991), which in masculine individuals may be reflected by very weak emotions experienced if a rival is encountered. Masculine individuals tend to be more independent, so a potential loss of partner does not induce very strong emotions. Likewise, such situations do not promote a sense of inadequacy and they do not impair self-esteem.

It should be pointed out, however, that the level of negative emotions experienced in a situation of jealousy, as reported by men and masculine individuals in the present study, may be linked to the cultural stereotype of masculinity. It is possible that men and masculine individuals did not want to acknowledge their negative feelings, such as sadness, fear, helplessness, guilt or emotional pain, because such feelings do not fit their self-image. According to gender stereotypes, women are more emotional and are allowed to manifest their feelings, whereas men are less emotional and should not express strong feelings, such as sadness or fear. That could explain why in the present study masculinity corresponded to lower scores in the factors of 'emotional devastation and focus on infidelity' and 'low self-esteem and sense of guilt'.

Another explanation for lower jealousy expression in men and in masculine subjects could be linked to signs of infidelity listed in the specially designed Questionnaire on the Emotion of Romantic Jealousy. The participants were asked to imagine that their partner "talks about another person, kisses another person, looks with affection at another person". It is likely that these cues of infidelity, being emotional rather than sexual in nature, induced a sense of emotional jealousy in the participants. It has been established that men and women differ in their response to sexual and emotional jealousy. Men are more likely to express stronger jealousy in response to sexual betrayal whereas emotional infidelity is more upsetting for women (Bendixen et al., 2015; Buss, 2018; Kennair et al., 2011; Sagarin et al., 2012; Valentova et al., 2020). That could explain the higher level of jealousy among women than men and among feminine individuals than masculine individuals in the present study. It is possible that if infidelity cues presented to the participants had referred to physical contact, sexual intercourse or wishing for sexual intimacy, stronger emotions would have been evoked in men and in masculine



individuals. It is possible that differences in aggressive thoughts and actions in response to a partner's infidelity also relate to the type of infidelity. Fussell and Stollery (2012) reported more violent thoughts towards the rival and a greater tendency to express dislike and hatred of the partner among men in the case of *fait accompli* jealousy, when sexual infidelity had taken place. In men, sexual infidelity more often leads to the loss of trust, distancing from the partner and to breakup. Given these findings, it is possible, that emotional signs of infidelity specified in the Questionnaire on the Emotion of Romantic Jealousy did not induce stronger aggression in men and in masculine individuals, which definitely needs to be further investigated.

Limitations and Further Research

Although biological sex and psychological gender related differences have been found in the experience and expression of romantic jealousy, the study contains certain limitations which should be mentioned. The current study did not check whether the subjects were involved in polyamorous or open relationships, or if they wished they were in such relationships but their partners were opposed to that. Such preferences to a degree could explain why the partner's interest in another person is not seen as a violation of the rules, and does not pose a threat to the relationship, according to the men or individuals representing psychological masculine gender. Individuals' willingness to engage in casual sex without commitment was not measured either. It is likely that unrestricted sociosexuality explains a lower level of jealousy. Individuals who engage or desire to engage in uncommitted sex, and have more positive attitudes towards that, experience less intense negative emotions when their partner is interested in another person. Therefore, future studies would need to control for the types of relationship (monogamous vs. open) and sociosexuality.

Another limitation, due to which it is not possible to more broadly generalise the findings, is associated with the way the concept of threat to a romantic relationship is operationalised. Hupka (1991) argues that jealousy, being one of the many emotions experienced in response to grave betrayal, is not in fact dominant. Therefore, if we want to measure jealousy alone, we should take into account less painful manifestations of betrayal. Based on the suggestions by Hupka (1991), the present study measured jealousy induced by less severe symptoms of infidelity, such as a kiss or prolonged eye contact. Nevertheless, in the case of evident violation of the rules of an exclusive relationship, jealousy can manifest in a completely different way. Perhaps jealousy-induced aggression is intensified by male sex and psychological masculinity mainly in the case of more serious instances of betrayal, such as a love affair, sexual intercourse or seeking a way to initiate sexual intimacy. Male sex and masculinity could also be linked to stronger negative emotions and stronger aggression if symptoms of infidelity include more direct physical contact and are indicative of physical/sexual betrayal. The questionnaire specially designed for this study does not differentiate between emotional



and sexual infidelity. Taking into account evolutionary explanations of sex differences in jealousy, men could differ from women and masculine individuals could differ from feminine individuals depending on the type of betrayal. A lack of distinction between emotional and sexual signs of infidelity is another limitation of the present study.

Practical Implications

The findings of the present study may be useful in therapy of couples dealing with the problem of jealousy. Women and feminine individuals far more strongly experience the emotions when they are faced with a rival, and even small signs of infidelity make them feel insecure. An encounter with a rival in their case is more detrimental to their self-confidence, which should be taken into account while planning this type of therapeutic work. On the other hand, psychological femininity may be helpful in work aiming to preserve the relationship.

Conclusions

The present study shows that both biological sex and an orientation towards traditional feminine or masculine roles is of significance in jealousy experience and expression. Serious negative emotional consequences of jealousy are stronger in women and in feminine individuals. Men and masculine individuals do not tend to perceive minor signs of infidelity as a threat to the relationship or to their self-esteem. Efforts aimed at making the partner stay are characteristic for feminine individuals; this is linked with a tendency for self-blame and a sense of inadequacy. The study shows that biological sex and the type of psychological gender are of importance mainly for the experience of jealousy at an emotional and cognitive level, and are less significant in the way jealousy is expressed, notably however jealousy expression involving destructive means or aggression, in the light of the present findings, is not linked to biological sex and any type of psychological gender.

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Data Availability: For this article, a dataset and a codebook are freely available (Banaszkiewicz, 2022)

Supplementary Materials

For this article, the following Supplementary Materials are available (for access see Index of Supplementary Materials below):



- · Dataset, codebook
- · Factor analyses of Questionnaire on the Emotion of Romantic Jealousy

Index of Supplementary Materials

- Banaszkiewicz, P. (2022). Supplementary materials to "Biological sex and psychological gender differences in the experience and expression of romantic jealousy" [Data, codebook]. PsychOpen GOLD. https://doi.org/10.23668/psycharchives.5675
- Banaszkiewicz, P. (2022). Supplementary materials to "Biological sex and psychological gender differences in the experience and expression of romantic jealousy" [Analyses]. PsychOpen GOLD. https://doi.org/10.23668/psycharchives.5676

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Appendix

Questionnaire on the Emotion of Romantic Jealousy

Think about an important relationship you are currently in, you were in earlier, or you would like to be in. Imagine that your partner is showing interest in another person of the opposite sex (e.g. he/she keeps talking about another person, kisses another person, looks with affection at another person, etc.). What do you feel, think and do in such a situation?

Select answers on the scale:

- 1 strongly disagree
- 2 disagree
- 3 neither agree nor disagree
- 4 agree
- 5 strongly agree

1 2 3 4 5

- I feel anger.
- I feel sadness.
- I feel bad about it.
- I feel that my self-esteem is declining.
- I feel like I've been lied to.
- I'm mad.
- I feel unimportant and unnecessary.
- I feel like I've been betrayed.
- I feel grief.
- I feel hurt.



1 2 3 4 5

I feel insecure or fearful.

I feel rage.

I'm surprised.

I feel that my partner has let me down.

I'm disappointed.

I feel aversion and anger towards my rival.

I feel pain.

I'm annoyed.

I feel rejected.

I feel frustrated.

I feel that I am inferior to my rival.

I feel lonely.

I feel helpless.

I feel untrustworthy.

I think about splitting up.

I wonder why my partner did this.

I wonder what's wrong with me.

I wonder in what way I'm inferior to my rival.

I think about revenge.

I wonder why someone else is more important.

I think about how I can win my partner back.

I think about my deficiencies.

I wonder if it's my fault.

I wonder what I'm doing wrong.

I believe that my partner does not care about me as he/she should.

I wonder how to solve this situation for the benefit of the relationship.

I plan to increase vigilance.

I think about beating or humiliating the rival.

I think about beating my partner.

I talk to my partner about this situation.

I split up with my partner.

I argue with my partner.

I struggle to regain the interest of my partner.

I enquire about the rival.

I make it difficult for my partner to contact the rival or directly ask my partner to break up

with him/her.

I break down.

I try to arouse jealousy in my partner.

I get into a fight with my partner or the rival.

I try to change this situation.



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