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Article

The Relationship between Jealousy and Mate Retention Strategies in Romantic Relationships among Women during the COVID-19 Pandemic

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Abstract: Jealousy and mate retention have received attention in the research over the last decades. Despite this, most of the research examined male jealousy and male mate retention, emphasizing cost-inflicting behavior due to its role in relationship and domestic violence. The aim of this study was to investigate the relationship between jealousy and all mate retention strategies in romantic relationship among women during the COVID-19 pandemic. The sample consisted of 772 Croatian women aged 19 to 40 who were in a heterosexual relationship at the time. The study was conducted online, and the participants completed the Multidimensional jealousy scale and Mate Retention Inventory. The results showed that cognitive, emotional, and behavioral jealousy are positively correlated with all mate retention strategies which indicate that a stronger experience of jealousy can be expected to result in more frequent use of all partner retention strategies. We also found that all three dimensions of jealousy and relationship length positively predicted both cost-inflicting and benefit-provisioning mate retention behavior, whereas age was a negative predictor of benefit-provisioning behavior only. Findings of this study suggest that although jealousy can substantially explain interpersonally risky and damaging behavior in relationships, it can also explain affectionate and attentive behavior to some extent.

Keywords: jealousy; partner retention strategies; romantic relationship; age; relationship length

1. Introduction

Individuals in romantic relationships encounter numerous challenges that can affect their relationships in various ways. One of those challenges can be the occurrence of romantic jealousy, which can be seen as an evolutionary adaptation. Although jealousy is often described as a negative emotion, when it occurs in small amounts, jealousy can contribute to positive outcomes in a romantic relationship, including expressing love and care toward the partner [1,2] and signaling a commitment to one's partner.

Given that jealousy is a complex construct that encompasses a range of reactions in response to the perception of a potential threat to a romantic relationship, Pfeiffer, and Wong [3] divided these reactions into three components: the cognitive, emotional, and behavioral components of jealousy. The cognitive aspect of jealousy arises when a person becomes aware of a threat to their romantic relationship. Therefore, subjective experience of jealousy is strongly linked to the associated cognitive processes, as the person primarily must perceive their partner's affection towards another person to trigger jealousy. Emotional jealousy is defined [3,4] as the level of emotional distress a person feels in situations that threaten their relationship with their partner. Jealousy research has shown that two components of the affective state underlie emotional jealousy - the intensity and frequency of jealous responses [3,4], which are inherent to emotions in general [5]. Behavioral jealousy is expressed through controlling behavior towards one's partner. Specifically, the behavioral expressions of jealousy are attempts to influence oneself, one's partner, or the situation to preserve the romantic relationship, reduce insecurity, or maintain self-esteem [4]. Buunk [6] proposed a similar model that differentiates 3 types of jealousy: preventive, anxious, and reactive jealousy. Preventive jealousy

relates to efforts to prevent partner's interactions where infidelity may occur. Anxious jealousy is referred to feeling upset or worried about the possibility of a partner's infidelity. Reactive jealousy is defined as a negative response to a partner's involvement, either emotional or sexual, with someone else. As Davis et al. argued [7], these two conceptualizations regarding the multidimensional nature of jealousy are congruent. More specifically, behavioral jealousy corresponds to preventive jealousy, cognitive jealousy to the anxious type of jealousy, and emotional jealousy to reactive jealousy.

Numerous studies have shown that women generally express more romantic jealousy than men in response to cues to emotional infidelity, whereas men express more romantic jealousy than women in response to cues to sexual infidelity [5,7,8]. These findings support the evolutionary hypothesis that, unlike men, women are certain of their biological connection to their offspring and are more concerned with getting help and resources from their partner, and emotional infidelity can signal that their partner is investing their resources elsewhere. Dissatisfaction with the relationship, lack of shared time, emotional neglect, and lack of partner attention, passivity in the relationship, aggressive and rejecting communication can all provoke emotional jealousy [9].

Although attraction and the selection of a romantic partner are crucial for human reproduction, maintaining an existing intimate relationship is often necessary to fulfill promises of reproductive effort [10]. De Miguel and Buss [11] consider retaining a partner to be an important issue in romantic relationships precisely because of the attempt to take a partner away from a third party, infidelity, and the risk of leaving an intimate relationship. Buss [10] defined such behavior as mate retention strategies and identified 104 such actions, which are divided into 19 tactics. These 19 partner retention tactics were grouped into 5 specific categories, which are direct guarding (e.g., checking on one's partner), intersexual negative inducements (e.g., flirting with someone else in the presence of one's partner), positive inducements (e.g., spending a large amount of money on one's partner), intrasexual negative inducements (e.g., derogation of a potential rival) and public signals of possession (e.g., kissing one's partner in the presence of others) [10]. In addition to the specific mate retention strategies, the categories can also be grouped into cost-inflicting strategies, which include direct guarding, intersexual negative inducements, and intrasexual negative inducements, and benefit-provisioning strategies, which include positive inducements and public signals of possession. Cost-inflicting mate retention strategies are low-cost and high-risk strategies because they involve investing fewer resources but taking a higher risk of losing a partner if not employed which implies direct and indirect aggressive, controlling, and interpersonally damaging behavior. They are also risky due to the increased possibility of retaliation from either a partner or a rival, relationship termination, and a decrease in relationship satisfaction [12]. Benefit-provisioning strategies are high-cost and low-risk strategies, characterized by investing more resources but their effect on retaining a partner is relatively low [13]. They also imply affectionate and attentive behavior towards the partner and are linked to positive relationship outcomes, such as increased satisfaction with the relationship and perceived higher relationship quality, as well as decreased odds of separation [12].

Sexual jealousy and partner retention are considered the most obvious partner retention tactics, but many tactics can be much more subtle. Some of them include distracting one's partner from a potential rival, portraying the rival as less attractive or desirable, buying gifts for one's partner, etc. It is also important to consider a person's age, as it is known that men are reproductively capable from puberty to old age, while women's fertility peaks in their mid-20s and significantly declines over time, especially in their late 40s [8,14]. Therefore, younger women are more desirable partners due to their reproductive potential, and potentially more desirable for "stealing". Thus, men married to younger, more attractive women should devote more time to partner retention strategies, as should women married to men with many resources [14]. Consequently, women's partner retention strategies may include, for example, improving their appearance [11]. Holden et al. findings [13] showed that men, unlike women, use mate retention more frequently when having a younger and more attractive partner. Similarly, women's but not men's mate retention was positively associated with the partner's income and status. De Miguel and Buss [11] found that younger women generally use all partner retention strategies more frequently than older women. However, they also showed that women in more committed relationships (engaged or married) usually used commitment

manipulation (e.g., discussing pregnancy), displaying resources, improving appearance, love, and care, and verbal signs of possession more often than women in less committed relationships. Davies et al. [7] found a positive correlation between relationship length and both cost-inflicting and benefit-provisioning mate retention strategies which implies that women in more committed relationships are also more motivated to use both mate retention strategies.

It can be assumed that a higher level of jealousy is positively associated with the frequency of using partner retention strategies [8,15]. Simply provoking jealousy can help identify individuals or situations that may pose a threat to an existing romantic relationship. Identifying a threatening individual or situation can encourage the use of partner retention strategies designed to strengthen the romantic relationship or repress rivals [16]. Additionally, jealousy can have positive effects on the relationship, such as admiration for the partner and showing strong feelings for them. However, most previous studies have linked jealousy to various cost-inflicting partner retention strategies, including aggression towards the partner or rival and inflicting negative outcomes on the romantic relationship [17]. In Conar's study [9], a positive correlation was found between all partner retention strategies (direct guarding, intersexual negative inducements, positive inducements, public signs of possession, intrasexual negative inducements) and all dimensions of jealousy (cognitive, emotional, behavioral). In the same study, the cognitive and behavioral dimensions of jealousy were positive predictors of both cost-inflicting and benefit-provisioning partner retention strategies, while relationship length was a negative one for benefit-provisioning strategies. Since Conar study [9] didn't consider sex differences, it is worth mentioning that Davis et al. [7] found that women who are more prone to reactive (i.e., emotional) jealousy are also more motivated to use both cost-inflicting and benefit-provisioning mate retention strategies, whereas anxious (i.e., cognitive) and preventive (i.e., behavioral) jealousy positively predicted only cost-inflicting mate retention. Findings that emotional jealousy is the only dimension of jealousy that has been positively associated with high relationship quality and satisfaction can be a possible explanation for female motivation to use benefit-provisioning strategies when experiencing elevated levels of emotional jealousy.

Despite the increasing number of research on partner retention strategies and jealousy over the last decades, female jealousy, and mate retention have received far less attention in research in comparison to male jealousy, and mate retention. Also, there is very little research that examines the relationship between these strategies and romantic jealousy, especially during the COVID-19 pandemic. Since Salkicevic et al. [18] argued that mate retention behavior is stable over time and Richter et al. [19] pointed out the dispositional nature of jealousy it is worth examining whether pandemic conditions such as social isolation had any effect on the relationship pattern between jealousy and mate retention. The pandemic has led to widespread social isolation, with many individuals spending more time at home with their partners. This increased proximity may intensify jealousy and insecurities in relationships. The pandemic has also been a source of stress and anxiety for many individuals. Jealousy can contribute to these negative emotions, and investigating this relationship can provide insights into how external stressors impact interpersonal dynamics.

Therefore, the main aim of the current study was to investigate the relationship between 3 dimensions of jealousy and mate retention strategies among women in a romantic relationship within the age range 19 – 40. We hypothesized that all three types of jealousy (cognitive, emotional, and behavioral) are positively correlated to all mate retention strategies (direct guarding, intersexual negative inducements, positive inducements, public signals of possession, and intrasexual negative inducements) [9]. Furthermore, we expect all three types of jealousy and relationship length to be positive predictors of both cost-inflicting and benefit-provisioning mate retention strategies, whereas age will be a negative one [7–9,11,14].

2. Materials and Methods

2.1. Participants

A total of 901 participants accessed the online survey; 108 participants were excluded for the following reasons: not having a father figure while growing up (n=48), being single (n=45), being a

male (n=13), not being in a heterosexual relationship (n=2). Additionally, cases identified as multivariate outliers (n=21) were excluded from further analysis, which is discussed in the results. Hence, the final sample consisted of 772 Croatian women that were between the ages of 19 – 40 in a heterosexual romantic relationship.

Participants provided information on their gender (male, female, other), age (year categories: 19 – 21, 22 – 25, 26 – 30, 31 – 35, 36 – 40), completed education (elementary school, secondary or vocational school, undergraduate degree, graduate degree, postgraduate or doctoral degree), relationship status (single, in a dating relationship, married), relationship length (less than 6 months, 6 months – 1 year, 1 – 2 years, 2 – 5 years, 5 – 10 years, more than 10 years), living with a partner (yes, no), are they in a heterosexual relationship or homosexual relationship and do they know their father or any person who represents a father figure in their life (yes, no). Sexual orientation and relationship with the father were controlled due to the research that has shown implications to the variables of interest [20–22].

Table 1. Frequency distribution of demographic variables.

Demographic characteristics		f (%)
Relationship status	Married	185 (24.0)
	In non-marital relationship	587 (76.0)
Age	19 – 21 years old	133 (17.2)
	22 – 25 years old	336 (43.5)
	26 – 30 years old	157 (20.3)
	31 – 35 years old	85 (11.0)
	36 – 40 years old	61 (7.9)
Education	Elementary school	3 (0.4)
	Secondary or vocational school	267 (34.6)
	Undergraduate degree	264 (34.2)
	Graduate degree	214 (27.7)
	Postgraduate or doctoral degree	24 (3.1)
Relationship length	less than 6 months	62 (8.0)
	6 months – 1 year	80 (10.4)
	1 – 2 years	117 (15.2)
	2 – 5 years	267 (34.6)
	5 – 10 years	161 (20.9)
	more than 10 years	85 (11.0)
Cohabitation	Yes	420 (54.4)
	No	352 (45.6)

2.2. Instruments

2.2.1. Multidimensional Jealousy Scale

To investigate jealousy in romantic relationships, the Multidimensional Jealousy Scale [3,23] was used. This scale measures cognitive, emotional, and behavioral jealousy and consists of a total of 24 items, or 8 items in each subscale. Each item in the questionnaire refers to the person "X," who represents the participant's romantic partner. A 7-point response scale is used for each statement, with 1 indicating "Never" and 7 indicating "Always" for the cognitive and behavioral jealousy subscales, while 1 indicates "Not at all" and 7 indicates "Extremely" for the emotional jealousy subscale. Results for each subscale are formed as a linear combination, with results ranging from 8 to 56, with higher scores indicating higher levels of jealousy. Pfeiffer and Wong [3] found internal

consistency for the cognitive jealousy subscale to be .92, .85 for the emotional jealousy subscale, and .89 for the behavioral subscale.

2.2.2. Mate retention inventory

To investigate the use of mate retention strategies, the Mate Retention Inventory [7,24] was used, specifically the Women's Version-Heterosexual Relationship. The questionnaire consists of 104 items that describe various behaviors to retain a partner, which are grouped into 5 specific categories: direct guarding, intersexual negative inducements, positive inducements, public signals of possession, and intrasexual negative inducements. The categories can also be grouped into cost-inflicting (direct guarding, intersexual negative inducements, and intrasexual negative inducements) and benefit-provisioning (positive inducements, and public signals of possession) mate retention strategies. A 4-point scale is used to assess the frequency of performing each mate retention act, with 0 meaning never and 3 meaning often. A higher score represents more frequent use of partner retention strategies.

For the Croatian sample, the reliability coefficients for the categories of partner retention for women were direct guarding $\alpha = .76$, intersexual negative inducements $\alpha = .74$, positive inducements $\alpha = .76$, public displays of possession $\alpha = .65$, and intrasexual negative inducements $\alpha = .42$ [24]. Additionally, in previous research for cost-inflicting mate retention strategies obtained reliability was .84, whereas for benefit-provisioning mate retention strategies was .77 [9].

2.3. Procedure

An online survey was created using the Google Forms platform. It was disseminated through e-mail lists and was shared in various groups on the social network Facebook, using a snowball sampling technique. Data were collected between 15 April 2020 and 10 September 2020.

At the beginning of the questionnaire, all participants were informed of the purpose of the research and guaranteed anonymity. They were also informed that they could withdraw from the participation at any time without any consequences and that their results would be used solely for the purpose of the research. Furthermore, participants were told that they could direct any queries about the research and its results to the researcher's email address. After reading and agreeing to the informed consent about the terms of participation, participants could proceed to answer the questionnaire. If they passed all elimination questions (gender, having a father figure in their lives, heterosexual relationship) participants completed the survey and were given clear instructions before each instrument. The completion took about 15 minutes, and at the end of the questionnaire, participants were thanked for their responses. Participants did not receive any compensation for participation.

2.4. Data Analysis

The data were analyzed using SPSS (25.0). Initial data examination included analysis of outliers, assessing the normality of distributions, and multicollinearity diagnostics. Most of the distributions did not meet normality criteria, which can be seen in Table 2. The parametric statistical procedures were nevertheless used when possible (Pearson correlation, multiple regression analysis) because more detailed data inspection showed that the criteria suggested by Kline [25] were met.

3. Results

3.1. Data examination and descriptive statistics

Analysis of outliers consisted of employing Mahalanobis D^2 measure using the linear regression method to detect multivariate outliers. All cases ($n=21$) that were detected as multivariate outliers were excluded from further analysis. After examination of outliers, the normality of distribution was assessed using skewness (γ_1) and kurtosis (κ) indices since tests of normality tend to be significant in large samples even when deviation from normality is minor. As suggested by Kline [25], for

assessing the normality of distribution in large samples (i.e., $N > 300$), absolute values of skewness and kurtosis should be used. A conservative rule of thumb states that skewness should not be greater than 3 and kurtosis should not be greater than 10 to proceed with parametric statistical procedures since the distributions are not severely non-normal. As shown in Table 2., only public signs of possession, benefit-provisioning strategies and emotional jealousy meet the parametric criteria suggested by Kline [25], although most of the variables aren't distributed normally. More specifically, the non-normal distributions are positively asymmetric except for emotional jealousy, indicating that participants' scores lean toward values below the scale average. Reliability analysis showed that all measured variables have adequate psychometric properties. Descriptive statistics for all measured variables can be seen in Table 2.

Table 2. Descriptive statistics for all measured variables ($N=772$).

Variable	M	C	SD	Min.	Max.	γ_1	κ	α
Direct guarding	25.51	24.00	6.15	18	55	16.93	14.03	.86
Intersexual negative inducements	39.58	37.00	9.04	29	77	15.45	8.69	.88
Positive inducements	54.51	54.00	9.65	27	89	4.20	1.82	.84
Public signals of possession	31.15	31.00	6.62	15	51	.79	-1.88	.81
Intrasexual negative inducements	17.29	16.00	2.20	16	34	35.57	76.82	.75
Cost-inflicting strategies	82.38	77.50	15.75	63	155	17.05	12.10	.92
Benefit-provisioning strategies	85.66	84.00	14.42	45	137	3.18	0.57	.89
Cognitive jealousy	14.11	12.00	7.34	8	45	18.52	13.69	.89
Emotional jealousy	33.55	35.00	12.74	8	56	-2.95	-4.66	.92
Behavioral jealousy	14.27	12.00	6.46	8	42	20.00	17.90	.86

3.2. Relationship between types of jealousy and mate retention strategies

Pearson and Spearman correlation analyses were run to investigate the relationship between types of jealousy and mate retention strategies, depending on the deviation from normality of distributions noted in Table 3. The results show that all three types of jealousy are positively correlated to all mate retention strategies. Regarding specific mate retention strategies, behavioral jealousy is strongly correlated with direct guarding and intersexual negative inducements, while correlations with positive inducements, public signals of possession, and intrasexual negative inducements are low. Correlations between cognitive and emotional jealousy and specific mate retention strategies are low to moderate.

Table 3. Correlation between types of jealousy and mate retention strategies ($N=772$).

Variable	r/q		
	Cognitive jealousy	Emotional jealousy†	Behavioral jealousy
Direct guarding	.43**	.35**	.69**
Intersexual negative inducements	.51**	.40**	.62**
Positive inducements	.33**	.26**	.36**
Public signals of possession†	.12**	.18**	.28**
Intrasexual negative inducements	.33**	.21**	.35**

Note. ** = $p < 0.01$; † = distributions aren't severely not normal.

Before conducting multiple regression analysis, a Pearson and Spearman correlation matrix was calculated between age, relationship length, cognitive, emotional, and behavioral jealousy, cost-inflicting, and benefit-provisioning strategies.

As seen in Table 4., cognitive and emotional jealousy are moderately positively correlated while behavioral jealousy is strongly positively correlated to the domain of cost-inflicting strategies. The correlations between all three aspects of jealousy and the benefit-provisioning strategies are positive, but fairly low. The correlation between all three types of jealousy is moderate, as is between cost-inflicting and benefit-provisioning mate retention strategies. Regarding age and relationship length, age was negatively correlated to all types of jealousy and mate retention strategies, whereas relationship length was negatively correlated to cognitive jealousy. All obtained coefficients regarding age and relationship length are very low and doubtfully meaningful.

Table 4. Correlation matrix for predictor and criteria variables (N=772).

Variable	1.	2.	3.	4.	5.	6.	7.
1. Age	1						
2. Relationship duration	.48**	1					
3. Cognitive jealousy	-.11**	-.13**	1				
4. Emotional jealousy†	-.12**	-.02	.38*	1			
5. Behavioral jealousy	-.08*	.02	.50*	.39*	1		
6. Cost-inflicting strategies	-.07*	.06	.55*	.41*	.75*	1	
7. Benefit-provisioning strategies†	-.12**	.04	.28*	.26*	.37*	.53*	1

Note. *= $p < .05$; ** = $p < .01$; † = distributions aren't severely not normal.

As suggested by Kline [25], before conducting regression analysis, we checked if crucial criteria were met for our criterion variables, that is cost-inflicting and benefit-provisioning mate retention strategies. Firstly, there were no multivariate outliers as mentioned before. For both criteria residuals were normally distributed and there was no collinearity (VIFs ranged between 1.26 and 1.45).

The results from multiple regression analysis predicting cost-inflicting strategies are outlined in Table 5. The model is statistically significant ($F(5,766)=245.55$, $p < .001$) explaining 61% criterion variance ($R^2_{\text{adjusted}}=.61$).

Table 5. Multiple linear regression predicting cost-inflicting mate retention strategies (N=772).

Predictor	β	t	p
Age	-.03	-1.07	.283
Relationship length	.07	2.92	.004
Cognitive jealousy	.21	7.95	.000
Emotional jealousy	.10	3.66	.000
Behavioral jealousy	.61	22.51	.000

As expected, all three types of jealousy and relationship length are significant and positive predictors of cost-inflicting mate retention strategies, and behavioral jealousy is the strongest one. Age wasn't significant predictor of cost-inflicting strategies.

The results from multiple regression analysis predicting benefit-provisioning strategies are outlined in Table 6. The model is statistically significant ($F(5,766)=32.82$, $p < .001$) explaining 15.6% criterion variance ($R^2_{\text{adjusted}}=.156$).

Table 6. Multiple linear regression predicting benefit-provisioning mate retention strategies (N=772).

Predictor	β	t	p
Age	-.13	-3.55	.000
Relationship length	.12	3.25	.001
Cognitive jealousy	.11	2.78	.006
Emotional jealousy	.10	2.86	.004
Behavioral jealousy	.26	6.63	.000

As expected, all three types of jealousy and relationship length are significant and positive predictors of benefit-provisioning mate retention strategies, with behavioral jealousy being the strongest one, whereas age is a negative one.

4. Discussion

This study aimed to investigate the relationship between jealousy, and mate retention strategies among women in a romantic relationship during COVID-19. As expected, it has been found that all partner retention strategies are positively associated with all aspects of jealousy. Regarding specific mate retention strategies, behavioral jealousy is strongly associated with direct guarding and intersexual negative inducements, while correlations with positive inducements, public signals of possession, and intrasexual negative inducements are low. Correlations between cognitive and emotional jealousy and specific mate retention strategies are low to moderate. The findings of this research indicate that a stronger experience of jealousy, especially behavioral jealousy can be expected to result in more frequent use of all partner retention strategies. This is not surprising because according to evolutionary theory, the emotion of jealousy serves the same function as partner retention strategies [1]. The perceived likelihood of a partner's infidelity has previously been associated with partner retention strategies, with studies showing that these strategies are more commonly employed when participants believe there is a likelihood of their partner being unfaithful [26]. The cognitive and emotional dimensions of jealousy are directly related to suspicion of a partner's infidelity and the emotions that arise from it, so the association between them and the frequency of using partner retention strategies is expected when an individual values preserving a romantic relationship with their partner. Direct guarding and behavioral jealousy both serve to prevent a partner from leaving the romantic relationship or cheating on the partner and Buss [10] refers to such behaviors as mate guarding. The association of jealousy with intersexual negative inducements which range from intentionally provoking jealousy in a partner, humiliating the partner in front of a rival, emotional and sexual coercion, to insulting the partner and physical violence, is consistent with research on partner violence. Arnocky et al. [27] found that such tactics are used to punish a partner and discourage the partner from committing infidelity, and individuals with strong feelings of jealousy are prone to react in this way [1].

Only one additional study to our knowledge has been conducted that examined the relationship between these constructs, and its findings indicate as well that all aspects of partner retention are positively correlated with all three dimensions of jealousy [9]. Conar [9] obtained a very similar correlation pattern regarding the relationship between jealousy dimensions and mate retention strategies, including low correlations between jealousy dimensions and the category of public displays of possession. This indicates that this finding can't be explained as the effect of social isolation since Conar study [9] was conducted prior to the COVID-19 pandemic.

Regarding cost-inflicting and benefit-provisioning mate retention strategies, multiple regression analysis showed that both can be predicted by jealousy, and relationship length, whereas age was a negative predictor of benefit-provisioning strategies only. Cognitive and emotional jealousy were moderately related while behavioral jealousy was strongly related to the domain of cost-inflicting strategies. On the other hand, the relationship between all three aspects of jealousy and the benefit-provisioning domain was fairly weak. Additionally, jealousy, age, and relationship length explained a substantial proportion of cost-inflicting variance, whereas their effects on benefit-provisioning strategies were small in size. Therefore, it can be concluded that all three dimensions of jealousy are more important for engaging in interpersonally damaging, risky, and aggressive acts (e.g.

monopolizing a romantic partner's time, emotionally manipulating one's mate, and threatening to hit an intrasexual rival) than for positive inducements (e.g. gift giving, appearance enhancement, performing sexual favors, and being more attentive and affectionate) and public signals of possession (e.g. holding hands and talking favorably about one's romantic partner to others) [7]. This is in line with the findings that jealousy is directly and firmly associated with aggressive behavior in women, especially in the context of mate retention [28]. Also, it seems that jealousy can be considered a positive and adaptive emotion because it predicts attentive and affectionate romantic behavior to some extent [2,19], which is associated with favorable relationship outcomes [7,12].

Regarding age and relationship length, results showed that even if there is a significant association, the effects are very low. Age was a negative predictor of benefit-provisioning mate retention strategies only, indicating that as women age, they are less prone to use these strategies. Regarding relationship length, it was a positive predictor for both cost-inflicting and benefit-provisioning mate retention strategies, indicating that women who are in longer relationships are more motivated to use both strategies. Since relationship length wasn't associated with cost-inflicting nor benefit-provisioning strategies, this was clearly a suppression effect via jealousy. Hence, it is worth considering general patterns of jealousy adopted by women, which become more firmly established as they age. The reason for this may be the higher number of romantic relationships among older women. In other words, older women are more likely to have been in more intimate relationships and have therefore experienced more abandonments than younger women. It is reasonable to assume, therefore, that they will exhibit more signs of jealousy in relationships, especially if more resources have been invested and especially if they share children with their partner. Regardless, as people grow older, entering a romantic relationship is perceived as a more serious matter and partners are more motivated to retain each other. It is also important to note that youth is an important signal of fertility and relative health and is also the most desirable trait in women from an evolutionary point of view [8,26]. Additionally, evolutionary theories suggest that the decline in reproductive capacity for women with age influences jealous behaviors because a woman's value as a partner decreases with age, and the person feels more threatened [29].

Lantagne and Furman [30] conducted an interesting longitudinal study on the development of romantic relationship characteristics with age and length of the relationship. The findings showed that long-term adolescent relationships were characterized by mutual support, elevated levels of support, negative interactions, control, and jealousy. Over time, long-term relationships continued to have a high level of support, but the level of negative interactions, control, and jealousy decreased. Guerrero and Afifi [4] found that individuals motivated to maintain their current relationship were prone to expressing behavioral jealousy. Older women, in longer and more committed relationships, may be equally or even more motivated to maintain their intimate relationships than younger women who have just begun romantic relationships [7]. The reason why this study showed no statistically significant age effect on cost-inflicting mate retention strategies might lay in the fact that during the COVID-19 pandemic, both partners had fewer opportunities to socialize in the sense that social distancing and isolation may have resulted in a reduced perception of relationship threat. The results also showed that as age increases, there is a slight decline in the usage of mate retention strategies, which is consistent with De Miguel and Buss' [11] findings that younger women in less committed relationships generally use all partner retention strategies more frequently. The explanation for this might be that younger people in newer relationships feel more insecure and have less trust in their romantic partner and therefore use partner retention tactics more often.

5. Limitations and future research

This study has several limitations. First, the sample is not representative since the study was conducted online and thus the generalizability of the findings is questionable. There is also an issue with the uneven distribution of the sample by age, education level, and duration of the relationship which is very likely to have influenced the distribution of certain variables and the relationship between them. Furthermore, observed relationships among variables in terms of correlation do not imply causality, and since this is not a longitudinal study, any conclusion on the direct effects of aging

or COVID-19 restrictions on the relationship between jealousy and mate retention strategies should be avoided, especially when taken into account that we tested general relationship patterns between the jealousy and mate retention, not the absolute values of exhibited behavior or experience. Considering age and relationship length, the sample size should also be considered since that can be a reason why some of the obtained coefficients reached statistical significance, but also the way both were measured. We had groups different in size which very likely decreased statistical power. Furthermore, these findings and explanations should be considered critically, given that they primarily rely on evolutionary theory, which practically suggests that only young and beautiful women are desirable partners. Future research should include both dispositional (e.g., neuroticism, self-esteem, dark personality traits) and situational (e.g., infidelity experience, relationship satisfaction, perceived relationship quality, cultural norms, and context) variables to gain a deeper and more comprehensive insight into partner retention behavior [7,9,12,18,19].

6. Conclusion

We can conclude that female jealousy and mate retention are strongly associated, especially when considering interpersonally damaging and aggressive behavior to retain a partner, and that jealousy can be considered positive and adaptive when associated with affectionate and attentive behavior towards a partner. It also seems that the relationship pattern between jealousy and mate retention remains stable, even in severely disrupted social circumstances.

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