

Assessing Jealousy: Factor Analyses, Measurement Invariance, Nomological Validity, and Longitudinal APIM Analyses of the Multidimensional Jealousy Scale

Assessment

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Abstract

The Multidimensional Jealousy Scale is the standard instrument to assess cognitive, emotional, and behavioral jealousy. We examined competing factor models and external correlations with broad and narrow traits. Across two studies, we analyzed four samples ($N_{\text{total}} = 2,117$). Confirmatory factor analysis supported the measurement model of three correlated factors in comparison to unidimensional, second-order, and bifactor models. Thus, speaking against the use of a total score. Furthermore, we found measurement invariance between romantic partners. We extended the Multidimensional Jealousy Scale (MJS)' nomological net to personality pathology and replicated prior findings of associations with broad and narrow traits. Study 2 examined longitudinal data (5- to 9-month lag) from couples. Actor-Partner Interdependence Model analyses showed that the MJS predicts facets of relationship satisfaction in actors and partners. We discuss potential avenues for revising the MJS (e.g., heteronormative item wordings).

Keywords

jealousy, personality pathology, relationship satisfaction, romantic relationships, actor-partner interdependence model, measurement invariance

Romantic jealousy describes individual differences in reactions to experiencing real or imagined threats to one's intimate relationship. Jealousy has been linked to predominantly negative consequences such as low relationship satisfaction and intimate partner violence (e.g., Attridge, 2013; van Peer, 2023; Wigman et al., 2008). Pfeiffer and Wong (1989) provided a 24-item self-report questionnaire, the Multidimensional Jealousy Scale (MJS), to assess expressions in three dimensions of jealousy; namely, cognitive, emotional, and behavioral types. The MJS, one of the standard instruments to assess romantic jealousy, has been translated into numerous languages (e.g., Brassard et al., 2020; De Cristofaro et al., 2022). Although the MJS is a standard instrument for assessing jealousy, there is only limited knowledge of its reliability and validity in terms of structural and predictive validity. For example, several studies have used the total score of the MJS, but no research has yet tested whether a general factor of jealousy reflects the measurement model of the MJS. We aimed to narrow this gap in the literature and analyzed data from four independent samples, including data from couples, across two studies.

The Multidimensional Jealousy Scale

The MJS was developed based on Pfeiffer and Wong's (1989) theoretical model, which assumes that experiences of jealousy follow appraisals of threat stimuli and are differentiated regarding cognitions, emotions, and behaviors. Specifically, cognitive jealousy describes worries and suspicions regarding one's partner's infidelity that can be based on actual and perceived or imagined relationship-related threats. Emotional experiences of jealousy appear in reaction to actual or perceived threats. Behavioral expressions of jealousy include protective behaviors (e.g., avoiding one's partner and a rival can develop intimacy) and detective behaviors (e.g., questioning the partner and checking their belongings). Studies have converged in showing that jealousy relates

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negatively to satisfaction and positive outcomes (e.g., Attridge, 2013; Brauer et al., 2021; van Peer, 2023).

Pfeiffer and Wong (1989) developed a self-report questionnaire that assesses the three jealousy dimensions with eight items each. The items describe situations and participants are asked how they would react to assumptions or perceptions of infidelity of one's partner or love interest (labeled as "X"). The cognitive scale is introduced with "How often do you have the following thoughts about X?" and a sample item is "I suspect that X may be attracted to someone else." The items assessing emotional jealousy are introduced by the question "How would you emotionally react to the following situations?" and a sample item is "X is flirting with someone of the opposite-sex." Behavioral jealousy is introduced by the question "How often do engage in the following behaviors?" and a sample item is "I question X about his or her whereabouts." Participants give their responses on seven-point Likert-type scales that consist of the response anchors 1 (*never*) and 7 (*all the time*) for the cognitive and behavioral subscales, and 1 (*very pleased*) to 7 (*very upset*) to respond to the items of the emotional jealousy scale.

Psychometric Properties

Pfeiffer and Wong (1989) studied the reliability and validity of the MJS in three samples from the United States ($N_s = 178, 123$, and 76 participants). Subsequent studies of the original version and adaptations extended the knowledge on the psychometric properties of the MJS.

Factor Structure. Pfeiffer and Wong (1989) conducted principal component analyses for each of their samples and found that three dimensions described the data best. The item loadings were between .56 and .87 for the cognitive scale, between .53 and .83 for the emotional scale (exception: Item 8 yielded a loading of .34 in Sample 3), and between .51 and .84 for the behavioral scale. Attridge (2013) replicated these findings in a sample of 229 undergraduate students. Furthermore, Pfeiffer and Wong reported that the item-total correlations exceeded .60 for the manifest scores. Brassard et al. (2020) examined the factor structure of the French translation of the MJS with confirmatory factor analysis (CFA) when analyzing data from 391 participants. They found that the three-factor model showed a better fit (root mean square error of approximation [RMSEA] = 0.096, 90% confidence interval [CI]: [0.090, 0.102], comparative fit index [CFI] = 0.822, standardized root mean square residual [SRMR] = 0.094) than two- and one-factor solutions (RMSEAs ≥ 0.125 , CFI ≤ 0.969 , SRMR ≥ 0.112). Note that all

three solutions showed inadequate model fit according to traditional cutoff criteria for model fit derived from simulations (Hu & Bentler, 1999). Moreover, Diotaiuti et al. (2022) conducted a CFA for the Italian translation and concluded "they did not adequately fit the data" (p. 5), although they did not report the fit coefficients. We argue that two points must be considered when interpreting these findings: First, the CFA findings were either based on a single sample and findings were not replicated, or the fit coefficients were not reported. The latter makes it impossible to adequately interpret the model fit. Second, both studies computed the CFA using the maximum likelihood (ML) estimator. The literature has shown that ML estimators systematically bias estimations of factor models (i.e., loadings, standard errors, and model fit) when analyzing data generated from responses to Likert-type rating scales because response distributions are not continuous and do not follow the normal distribution (Brauer, Ranger, et al., 2023). Thus, testing the MJS's factor structure with CFAs using an appropriate estimator (i.e., weighted least squares) in sufficiently large samples is needed to derive robust estimations of the measurement model.

Although there is no support for the existence of a general factor of jealousy in the MJS, several authors have computed and interpreted such a total score. Brassard et al. (2020) reported model fit indices (RMSEA = 0.160, 90% CI [0.154, 0.165], CFI = 0.503, and SRMR = 0.142) for a unidimensional model. Thus, it cannot be assumed that responses on the MJS are described well by a single factor that would translate to a total score. To our knowledge, it is an open question whether alternative measurement models considering a general factor that would reflect a total score (e.g., a second-order factor model with the three first-order factors and a general factor on the second level) are superior to the original three-factor model.

Reliability. Pfeiffer and Wong (1989) investigated the reliability of the MJS by testing Cronbach's α in their samples. They found α s between .89 and .92 for the cognitive scale, between .82 and .85 for the emotional scale, and between .86 and .90 for the behavioral scale. These findings have been replicated in English-speaking samples, showing that the internal consistencies were typically between .80 and .90 (e.g., Attridge, 2013; Chin et al., 2017). In German-speaking samples, Brauer and colleagues (2021) reported α s of .85 (cognitive), .88 (emotional), and .74 (behavioral) when analyzing 228 opposite-sex couples ($N = 456$ participants), and Stieger et al. (2012) found internal consistencies of .89 (cognitive), .92 (emotional), and .85 (behavioral) among 154 participants.

Pfeiffer and Wong (1989) tested the temporal stability in a subsample of 30 participants across a time lag of 2 months. The stability correlations were .75 (cognitive), .82 (emotional), and .34 (behavioral). They interpreted their findings as evidence of robust stability and retest reliability for the cognitive and emotional scale scores and argued that the behavioral reactions might be more dependent on situational factors. However, it must be noted that the small sample size, missing differentiation between true score change and errors, and lack of theoretical assumptions concerning the (in)stability of jealousy across a comparatively long interval question whether the coefficients can be interpreted as indicators of retest reliability (for discussions, see Chmielewski & Watson, 2009; Watson, 2004).

Brief Versions

Several brief forms of the MJS exist. Their item selections are based on factor loadings from exploratory analyses of the respective study samples and have been unsystematic between studies, with one Italian version using 17 items (Tani & Ponti, 2016) and another containing 15 items (Diotaiuti et al., 2022), an English brief version that contains 18 items (Elphinston et al., 2011), and a 15-item French version (Brassard et al., 2020). In short, the comparability between brief forms and standardization is limited because studies and brief forms have differed in terms of the number of items used and the rationale of item selection.

The Present Study

We aimed to extend the knowledge of the reliability and validity of the MJS by analyzing data from four independently collected samples, including individuals (Samples 1 and 3) and couples (Samples 2 and 4). In Study 1, we examined the factor structure of the MJS, measurement invariance (MI) between opposite-sex partners, the scales' internal consistencies, and the nomological validity. In Study 2, we collected longitudinal data (5- to 9-month time-lag) from couples and studied the MJS's predictive validity by examining associations with relationship satisfaction using Actor-Partner Interdependence Model (APIM) analyses (Cook & Kenny, 2005).

Study 1

The aims of Study 1 were fourfold: First, we examined the factor structure of the MJS with CFAs by testing three models; namely, Model 1 consisted of three correlated factors reflecting cognitive, emotional, and behavioral jealousy in accordance with Pfeiffer and Wong

(1989); Model 2 was a unidimensional model comprising only a single factor that reflected the potential total score; and Model 3 was a second-order model, with three correlated factors reflecting the three jealousy dimensions and a higher-order general factor of jealousy. We tested the CFAs across Samples 1 to 3 to examine the stability of the factor structure.

Second, we tested the MI of the MJS regarding gender in mixed-gender couples (Sample 2). MI serves as a prerequisite for establishing the equivalence and comparability of scale scores (Chen, 2007). Given the increasing interest in dyadic studies, it has become crucial to ascertain the invariance of partners' MJS scores, thereby ensuring that differences in distributions and effects are not attributable to psychometric disparities. This is particularly important when considering that the existence of gender differences in jealousy has been proposed in many studies (for an overview, see Buss, 2018). However, to our knowledge, no study has yet examined whether gender differences in the MJS are based on measurement-related differences.

Third, we tested the reliability of the MJS in terms of internal consistency. We expected coefficients in the range of .70 to .90, in line with Pfeiffer and Wong (1989) and other translations of the MJS (e.g., De Cristofaro et al., 2022).

Fourth, we investigated the nomological net by testing associations with broad and narrow constructs. Specifically, we aimed to replicate prior findings regarding associations with the Big Five personality traits, romantic attachment styles, the dark triad traits, life satisfaction, and dispositions toward ridicule and being laughed at. To our knowledge, only one study had examined the associations between the Big Five personality traits and the full version of the MJS: Tošić-Radev and Hedrih (2017) analyzed data from 500 participants and found that only neuroticism related robustly with the MJS (r s between .27 and .32).

Attridge (2013) examined the relationship between the MJS and several external variables, among them life satisfaction, in a sample of 229 participants. They found that cognitive jealousy related to life satisfaction ($r = -.30$), and we expected to replicate this negative association.

Regarding romantic attachment styles, Knobloch et al. (2001) reported that both cognitive and emotional jealousy related to higher attachment anxiety, whereas only cognitive jealousy related to greater avoidant attachment. Attridge (2013) also reported positive relationships between cognitive jealousy and inclinations to avoidant and anxious attachment. It must be noted that the study of attachment styles is affected by operationalization and measurement differences. While prior studies have used categorical approaches to attachment, we

followed the state-of-the-art approach that understands romantic attachment in terms of the distinct *dimensions* of attachment avoidance and attachment anxiety (Fraley et al., 2015). By applying the dimensional approach to previous findings, we expected that concerns about the relationship (anxiety) would be present in all types of jealousy. However, based on existing literature, we expected that only cognitive jealousy would be associated with avoidant attachment.

For the dark triad (DT) traits of Machiavellianism, psychopathy, and narcissism, the literature has shown mixed findings. Chin et al. (2017) reported two studies searching for relationships between the DT traits and the MJS. In Study 1, only psychopathy showed correlations $\geq .20$ with cognitive and behavioral jealousy, whereas in Study 2 cognitive jealousy was unrelated to the DT traits, emotional jealousy related positively to Machiavellianism, and behavioral jealousy related to all DT traits (all $r_s \geq .20$). Given the mixed findings, we examined the associations exploratorily.

Gelotophobia (fear of being laughed at), gelotophilia (joy in being laughed at), and katagelasticism (joy in laughing at others; Ruch & Proyer, 2009) describe individual differences in dealing with ridicule and being laughed at. Brauer et al. (2021) examined the relationships between the three laughter-related dispositions and the MJS in 228 couples and found that gelotophobia related to cognitive, emotional, and behavioral jealousy positively; gelotophilia was positively related to cognitive jealousy; and katagelasticism related to behavioral jealousy (all r_s between .17 and .29) on the intra-personal level (i.e., actor effects).

We then extended the nomological net by testing associations with broad domains of maladaptive personality traits and facets of adult playfulness. Maladaptive traits describe five broad domains of individual differences in personality pathology. These are negative affect (e.g., emotional lability and anxiousness), detachment (e.g., depressiveness and anhedonia), antagonism (e.g., callousness and attention seeking), disinhibition (e.g., impulsivity and distractibility), and psychoticism (i.e., unusual beliefs and experiences and eccentricity) (Krueger & Markon, 2014). These domains can be assessed with the standard instrument, the Personality Inventory for the *DSM-5* (PID-5; Krueger & Markon, 2014). The *DSM-5* included the maladaptive traits to allow for a dimensional assessment of personality pathology as an alternative to the categorical approach to personality disorders, because the latter has been criticized for missing discrimination (e.g., Zimmermann et al., 2014). To our knowledge, this was the first study to localize the three dimensions of jealousy in the PID-5 framework, and we expected to find positive relationships between the MJS and negative affect because there

is an overlap in sensitivity to stimuli that evoke strong emotional reactions such as perceptions of anxiousness. Furthermore, one might argue that sensitivity to *perceived* threats to one's relationship might also go along with inclinations to psychoticism, which is characterized by unusual beliefs and experiences. Finally, antagonism is characterized by callousness and anti-social tendencies, and it could be argued that those high in antagonism would be more inclined to show behavioral reactions of jealousy in terms of ignoring interpersonal boundaries and showing behaviors such as searching through one's partner's belongings. Finally, we examined the relationships between the MJS and the domains of disinhibition and detachment in an exploratory fashion.

Finally, we tested the associations between variables with adult playfulness (i.e., individual differences in [re]framing situations such that they are experienced as interesting, entertaining, and/or intellectually stimulating; Proyer, 2017). APIM analyses of couples who completed measures of playfulness and relationship satisfaction (including the facets of mistrust toward the partner and feelings of being constrained by the partner) showed that playfulness in actors did not relate to such experiences that relate to jealousy in young-, middle-, and old-age couples (Brauer, Sendatzki, et al., 2023; Proyer et al., 2019). Accordingly, we did not expect an overlap between the MJS and playfulness.

Method

Participants and Procedure. Sample 1 comprised 867 participants aged between 18 and 73 years ($M = 26.1$, $SD = 9.2$, median = 23.0). Of those, 657 participants identified as women, 204 as men, three as non-binary, and three did not indicate their gender. The majority (75.2%) were students from various fields, 19.0% working professionals, 2.8% in vocational training, 1.6% voluntary services, and 1.4% were either retired or currently unemployed. The educational status was high: 60.0% held a high school diploma qualifying them to attend university and 23.3% held a university degree. Seventy percent of the sample were in a relationship when completing the questionnaire, 28.6% were single, and 12 participants did not indicate their relationship status. Participants completed an online questionnaire that contained a demographic questionnaire and the German translation of the MJS that was hosted by SoSci Survey (www.sosicisurvey.de) and advertised on the authors' department website. There was no financial compensation, but psychology students earned course credit upon request. Completing the online questionnaire took approximately 5 min.

The data of Sample 2 were taken from Brauer et al.'s (2021) study on associations between romantic jealousy and dispositions toward ridicule and being laughed at. There was no overlap in analyses with the present study. The data set is openly available from the OSF and contains responses to the German translation of the MJS from 228 mixed-gender couples ($N = 456$ participants; 50% men, 50% women). Their mean age was 28.8 years ($SD = 11.6$, median = 24.0), and the couples were together for $M = 7.1$ years ($SD = 9.0$). About half of the sample (51.3%) were students, and the educational status was high according to participants' highest degree earned (31.7% held a university degree and 44.7% held a high school diploma qualifying one to attend university).

Sample 3 comprised 656 participants with a mean age of 25.7 years ($SD = 7.6$, median = 23.0). Most participants identified as women (77.9%), 20.9% identified as men, six identified as non-binary, and two did not indicate their gender. At the time of the study, 59.4% were in a relationship, 38.9% were single, 0.9% were divorced, and five participants did not indicate their relationship status. Of the sample, 85.3% were students, 11.9% were employed, 1.2% provided voluntary services, nine participants were retired or currently unemployed, and one was in vocational training. The data were collected as part of a larger ongoing project aimed at studying personality and positive psychological functioning. The study is accessible on the authors' department website, and there was no financial compensation for participation.

All the study samples were of sufficient size to compute the CFAs using the WLSMV estimator (Moshagen & Musch, 2014). A power analysis (G*Power; Faul et al., 2009) for the correlation analyses (Sample 3) showed that the sample size allowed us to detect small effect sizes of .11 with 80% power and a 5% type I error rate.

Instruments. The participants from all the samples completed the German version of the MJS (Pfeiffer & Wong, 1989; German translation: Stieger et al., 2012). The participants from Sample 3 additionally completed the external instruments described below. For all the instruments, we provide sample items and the numerical and verbal anchors of the response scales in Supplemental Table S1.

We assessed romantic attachment styles with the Experiences in Close Relationships (ECR) scale (Brennan et al., 1998; German version: Neumann et al., 2007). The ECR assesses attachment-related *anxiety* and *avoidance* with 18 items each. There is robust evidence for the reliability and validity (e.g., Neumann et al., 2007).

We used Ostendorf's (1990) 30-item Minimum Redundancy Scale (MRS-30) to assess the Big Five traits. The MRS-30 contains 30 bipolar adjective pairs (e.g., "polite-rude" for Agreeableness). The MRS-30 is frequently used to assess extraversion, neuroticism, agreeableness, conscientiousness, and openness to experience in German-speaking samples. As recommended by Ostendorf, we computed factor scores (five factors rotated to the varimax criterion).

We used the PID-5 (Krueger & Markon, 2014; German version: Zimmermann et al., 2014) to assess maladaptive personality traits. The PID-5 contains 220 items that assess five broad domains of personality pathology: negative affect, disinhibition, detachment, psychoticism, and antagonism. Zimmermann et al. (2014) provided robust evidence for the reliability and validity of the German version of the PID-5 using data from multiple samples.

We assessed narcissism, psychopathy, and Machiavellianism with the Short Dark Triad-3 (SD-3) scale (Jones & Paulhus, 2014; German version: Malesza et al., 2019). Each trait is assessed with nine items. Robust evidence for the reliability (e.g., test-retest correlations $\geq .74$) and validity of the German SD-3 scale has been provided by Malesza et al. (2019) and Wehner et al. (2021).

We assessed individual differences in adult playfulness with the Short Measure for Adult Playfulness (SMAP; Proyer, 2012) and the OLIW questionnaire (Proyer, 2017). The SMAP assesses inclinations to a playful attitude and an easy onset of play behaviors with five items. A total score is computed, and there is good evidence for the SMAP's reliability and validity (Proyer, 2012). The OLIW questionnaire assesses four facets of adult playfulness (Other-directed, Lighthearted, Intellectual, and Whimsical playfulness) with seven items each and allows one to differentiate between fine-grained types of playfulness. The reliability and validity of the OLIW questionnaire have been supported across studies and methods (e.g., item response theory and convergence with diary data; Davis & Boone, 2021; Proyer, 2017).

We assessed gelotophobia, gelotophilia, and katagelasticism with the PhoPhiKat-45 (Ruch & Proyer, 2009). Each of the three dispositions is assessed by 15 items. The PhoPhiKat-45 is the standard instrument for assessing individual differences in dealing with ridicule and being laughed at, and its reliability and validity have been supported across numerous studies (see Brauer & Proyer, 2021).

Finally, we used the five-item Satisfaction with Life Scale (SWLS; Diener et al., 1985) to assess life satisfaction. Hinz et al. (2018) reported robust evidence for the reliability and validity of the German version.

Table 1. Fit Indexes of Confirmatory Factor Analyses of the Multidimensional Jealousy Scale.

Fit index	Three correlated factors	Second-order model	Unidimensional
Sample 1			
RMSEA	0.083 [0.079, 0.086]	0.092 [0.088, 0.096]	0.179 [0.176, 0.183]
CFI	0.921	0.901	0.62
TLI	0.912	0.891	0.59
SRMR	0.065	0.076	0.140
χ^2	1,725.85	2,089.01	7,279.71
Sample 2			
RMSEA	0.078 [0.073, 0.084]	0.088 [0.083, 0.093]	0.181 [0.176, 0.185]
CFI	0.921	0.900	0.577
TLI	0.913	0.889	0.537
SRMR	0.072	0.085	0.153
χ^2	944.64	1,136.96	3,996.73
Sample 3			
RMSEA	0.092 [0.088, 0.096]	0.103 [0.098, 0.107]	0.190 [0.186, 0.194]
CFI	0.93	0.91	0.69
TLI	0.92	0.90	0.66
SRMR	0.065	0.076	0.143
χ^2	1,636.95	1,973.49	6,202.09

Note. $N = 867$, 456, and 656 (Samples 1, 2, and 3, respectively). 90% CI of RMSEA coefficients in brackets. Degrees of freedom = 249 (three correlated factors), 250 (second-order model), 252 (unidimensional model). RMSEA = root mean square error of approximation; CI = confidence interval; CFI = comparative fit index; TLI = Tucker–Lewis index; SRMR = standardized root mean square residual.

Data Analysis

Confirmatory Factor Analysis. We tested three measurement models with CFAs; namely, (a) Pfeiffer and Wong's (1989) classical model containing three correlated factors; (b) a second-order factor model that assumes a general factor of jealousy along with the three correlated factors on the lower level; and (c) a unidimensional model that assumes a single jealousy factor with all items loading on one factor. The latter two models utilized a general factor that represents the total score some studies have utilized. We used Mplus 8.8 (Muthén & Muthén, 1997–2019). Contrary to prior studies, we used the WLSMV estimator to account for the distribution and categorical nature of the response data generated by Likert-type rating scales (Brauer, Ranger, et al., 2023). We evaluated the model fit indexes RMSEA, CFI, TLI, and SRMR and reported χ^2 coefficients for transparency because they are oversensitive to sample size and overdetect minor deviations between theorized and empirical models.

Measurement Invariance. We analyzed the MI for men and women in couples (Sample 2). Note that we used the robust maximum likelihood (MLR) estimator instead of the WLSMV for this analysis because (a) not all response options were used across subsamples, which did not allow us to estimate the same number of item thresholds across the subsamples, and (b) there is evidence that the MLR estimator provides more precise estimates in the MI testing of ordered data (Sass et al.,

2014). We tested three degrees of MI and compared the changes in model fit: Configural MI assumes the same number of factors across groups; metric MI constrains factor loadings to be equal; and scalar MI additionally constrains item intercepts to be invariant across groups. We evaluated the change in fit across the models by Chen's (2007) recommendations and rejected metric invariance when $\Delta CFI \geq .010$ and $\Delta RMSEA \geq 0.015$ (or $\Delta SRMR \geq .030$) and rejected scalar invariance when $\Delta CFI \geq .010$ and $\Delta RMSEA \geq 0.015$ (or $\Delta SRMR \geq .010$).

Reliability. We tested the internal consistency of the MJS to estimate its reliabilities. We computed Cronbach's α and McDonald's ω using the MBESS R package. The latter estimates the internal consistency based on factor loadings and has been discussed as a more appropriate estimate of reliability because it makes less strict assumptions than Cronbach's α (e.g., Dunn et al., 2014).

Results and Discussion

Factor Analyses. Table 1 shows the model fit indexes for the three models and each sample. Inspection of the fit indices showed that a unidimensional model was not supported, with $RMSEA \geq 0.18$, $CFI/TLI \leq .70$, and $SRMR \geq 0.14$. The second-order model including the general factor and the three jealousy factors fit better than the unidimensional model ($RMSEA \leq .09$; $CFI/$

Table 2. Descriptive Statistics, Internal Consistencies, and Ranges of Corrected Item-Total Correlations (CITC) and Standardized Factor Loadings (λ) for the Multidimensional Jealousy Scale (MJS).

MJS	M	SD	α	ω	CITC	λ
Sample 1						
Cognitive	2.57	1.12	.88	.87	[.63, .70]	[.69, .90]
Emotional	4.40	1.04	.87	.87	[.54, .69]	[.66, .76]
Behavior	2.17	0.84	.80	.81	[.43, .62]	[.55, .80]
Sample 2						
Cognitive	2.21	0.94	.85	.87	[.47, .73]	[.65, .88]
Emotional	4.55	1.04	.88	.88	[.56, .68]	[.65, .79]
Behavior	2.03	0.75	.74	.77	[.31, .59]	[.48, .73]
Sample 3						
Cognitive	2.71	1.25	.91	.90	[.66, .76]	[.74, .93]
Emotional	4.37	1.11	.89	.89	[.58, .73]	[.70, .79]
Behavior	2.20	0.99	.86	.87	[.52, .69]	[.62, .88]

Note. $N = 867, 456$, and 656 (Samples 1, 2, and 3, respectively).

$TLI \geq .89$; $SRMR \geq .09$), although it fit worse than Pfeiffer and Wong's (1989) original model containing three correlated factors ($RMSEA \leq .09$; $CFI/TLI \geq .92$; $SRMR \leq 0.07$). The loadings of the latter model were robust in all samples (all $\geq .48$, see Table 2 for an overview) and converged well with the corrected item-total correlations (see Table 2).¹ The factor intercorrelations in Samples 1, 2, and 3 were .27, .18, and .37 between the factors of emotional and cognitive jealousy, .37, .35, and .44 between the factors of emotional and behavior jealousy, and .55, .53, and .58, respectively, between cognitive and behavior jealousy.

Cutoff criteria for goodness-of-fit indexes sensu Hu and Bentler (1999) are not available for the WLSMV estimator, but considering our findings across the three independent samples, we concluded that the measurement model comprising three correlated factors representing cognitive, emotional, and behavioral jealousy represented the MJS responses best. The data did not support the assumption of an MJS total score, when testing unidimensional, second-order, and bifactor models. Thus, we recommend interpreting prior findings based on the total score cautiously, as it does not represent the MJS's measurement model and, from a practical perspective, does not consider the multifaceted nature of jealousy and the MJS.

Measurement Invariance. All changes in fit were below the cutoffs ($\Delta RMSEA \leq 0.005$ and $\Delta SRMR \leq 0.005$; see Supplemental Table S3 for all coefficients). Thus, we did not reject metric and scalar invariance between men and women.

Taken together, the three-factor model, its loadings, and item intercepts were invariant for men and women in couples. This indicates that differences between the

men's and women's MJS scores and actor- and partner effects in dyadic studies can be compared and interpreted in a meaningful way independently from measurement-related differences.

Reliability and Descriptive Statistics. Table 2 gives the descriptive statistics and internal consistencies. First, the distribution of the mean and SD values showed high comparability across our samples. Second, the internal consistency estimates ranged between .80 and .91, with the exception that the behavior scale yielded an estimate of $\alpha = .74$ and $\omega = .77$ in Sample 2.

Overall, our findings indicated the stability of the score distributions and internal consistencies across indicators α and ω across samples. However, in our sample of couples (Sample 2), the responses to the behavior jealousy scale were less consistent. It could be argued that indicators of behavioral reactions to jealousy might be more differentiated and heterogeneous when being in a relationship and assessing behavioral jealousy exclusively in couples.

Nomological Validity. Table 3 gives the validity correlations between the MJS and external measures (see Supplemental Table S1 for the descriptive statistics and reliabilities, which were all comparable to findings from earlier studies in German-speaking samples). The localization of the MJS in attachment styles showed that avoidance related to cognitive jealousy ($r = .20$, $p < .001$), and that all types of jealousy were associated with interpersonal working models characterized by worrying about one's romantic relationship (r s between .32 and .46). Our findings fit with prior studies (Attridge, 2013; Knobloch et al., 2001) and indicate that the findings

Table 3. Correlations Between the Multidimensional Jealousy Scale and External Measures.

External measures	Cognitive	Emotional	Behavior	R^2
Attachment styles				
Anxiety	.46***	.32***	.40***	.26
Avoidance	.20***	.00	.07	.05
Big Five				
Extraversion	-.03	-.03	.08	.02
Neuroticism	.23***	.13***	.12**	.05
Openness	-.08	-.04	-.11*	.01
Agreeableness	-.11**	-.09	-.17***	.03
Conscientiousness	-.06	.10	.01	.02
Personality pathology				
Negative affect	.32***	.18***	.23***	.10
Detachment	.18***	.05	.10*	.03
Antagonism	.24***	.09	.31***	.10
Disinhibition	.24***	.01	.21***	.08
Psychoticism	.24***	.02	.18***	.07
Dark triad				
Machiavellianism	.24***	.20***	.30***	.10
Narcissism	.09*	.10*	.22***	.05
Psychopathy	.25***	.02	.26***	.09
Life satisfaction	-.21***	-.06	-.07	.03
Dealing with laughter				
Gelotophobia	.23***	.17***	.19***	.06
Gelotophilia	-.03	-.09*	-.02	.01
Katagelasticism	.13**	.05	.19***	.03
Playfulness (SMAP)	.03	-.11*	.01	.02
Playfulness (OLIIV)				
Other-directed	-.03	-.03	.00	.00
Lighthearted	-.03	-.12*	-.01	.02
Intellectual	-.05	-.10	-.05	.01
Whimsical	.05	-.07	.01	.01

Note. $N = 656$. R^2 = Determination coefficient reporting the variance overlap between the MJS scales and the external scale after controlling for age and gender.

* $p < .05$. ** $p < .01$. *** $p < .001$.

could be conceptually replicated with the German MJS, using the dimensional approach to attachment.

As expected, and in line with Tošić-Radev and Hedrih (2017), the localization of the MJS in the five-factor model of personality showed correlations of mostly negligible magnitudes, except for minor associations with neuroticism ($rs \leq .23$) and low agreeableness ($r = -.17, p < .001$). When examining personality pathology (PID-5), negative affect is related to all types of jealousy ($rs \geq .18, ps < .001$). While emotional jealousy showed minor effect sizes for the remaining PID-5 domains, cognitive jealousy and behavioral jealousy related to inclinations to detachment, antagonism, disinhibition, and psychoticism (rs between .18 and .31).² Thus, the comparison of findings regarding the Big Five and PID-5 personality traits showed that MJS scores coincided with greater inclinations to report maladaptive personality traits, particularly negative affect and antagonism. Overall, the findings fit well with expectations and support the

nomological validity regarding the variable space of broad personality traits.

Regarding narrower traits, we examined the life satisfaction and DT traits. All types of jealousy related to Machiavellianism ($rs \geq .20$), whereas narcissism related robustly to behavioral jealousy ($r = .22$), and psychopathy related to cognitive and behavioral jealousy ($rs = .25$ and $.26; ps < .001$). Although we replicated the findings of Chin et al. (2017) regarding psychopathy and narcissism, the relationship with Machiavellianism remained inconclusive when comparing the studies. This is because Chin et al. reported mixed findings concerning Machiavellianism, with negligible associations in Study 1 and significant associations with cognitive and behavioral jealousy in Study 2. Thus, while the replicated findings concerning narcissism and psychopathy, and partly Machiavellianism, speak for the nomological validity of the German-language MJS, further research is needed to clarify potential moderators and mediators that might explain the heterogeneity of the relations

between the MJS and Machiavellianism across independent samples. Concerning life satisfaction, we replicated Attridge's (2013) finding of cognitive jealousy, showing a negative relationship to satisfaction ($r = -.21, p < .001$). Next, we tested the associations with dispositions toward ridicule and being laughed at. We found that gelotophobia related to higher MJS scores (r s between .17 and .23, p s $< .001$), whereas gelotophilia showed negligible associations with the MJS (r s $\leq .09$). Katagelasticism related to behavioral jealousy ($r = .19, p < .001$). Thus, findings from couples (Brauer et al., 2021) replicated well in our sample comprised of singles and partnered individuals.

Finally, we examined relationships with facets of adult playfulness. As expected, we found negligible correlations with indicators of adult playfulness (r s $\leq .12, |p$ s $\geq .001$; $\leq 2\%$ shared variance), thus mirroring prior findings concerning actor effects from dyadic analyses of couple data (Proyer et al., 2019). However, future research should extend these analyses to couples to investigate the existence of partner effects, as light-hearted playfulness has correlated with a partner's mistrust in prior research (Brauer, Sendatzki, et al., 2023; Proyer et al., 2019).

In addition, we computed the amount of variance explained in the outcomes by the MJS in regression analyses after controlling for age and gender (Step 1: age and gender; Step 2: MJS). This approach showed that the MJS shared $\leq 10\%$ variance with the external measures, indicating no redundancy with broad and narrow traits (see Table 3; R^2). An exception was that anxious attachment shared 26% variance with the MJS, suggesting that working models of close relationships that are characterized by worrying about the relationship and feeling reciprocally loved show similarities but no redundancies. Knobloch et al. (2001) suggested that anxious attachment might share the propensity to increased worrying and awareness concerning imagined threats to one's relationships, which could explain their overlap.

Conclusion of Study 1

Taken together, the findings from three independent samples support the stability of the three-factor solution representing the measurement model of the MJS and question the use of total scores in previous research. Furthermore, we found invariance of the measurement model across opposite-sex partners in romantic couples, supporting the use of the MJS in studies examining gender differences and dyadic studies. Moreover, we now have evidence for the reliability of the German-language MJS concerning stable internal consistency estimates from samples of individuals and couples. Finally, our correlation analyses with external measures of broad

and narrow traits provided further evidence for the nomological validity of the MJS by replicating and extending findings from the literature.

This study has limitations, however, including the use of self-reports and cross-sectional data which may introduce common-method bias in validity analyses (Campbell & Fiske, 1959). This issue will be partly addressed in Study 2. Furthermore, although our sample sizes provide high power, a cross-validation of the validity correlations in independent samples is desirable in future research.

Study 2

In Study 2, we extended the knowledge regarding the reliability and validity of the MJS by collecting longitudinal data from mixed-gender couples who completed the MJS and a measure of relationship satisfaction with a time lag of 5 to 9 months. We used APIM (Cook & Kenny, 2005) analyses to predict satisfaction in actors and partners over time. Prior research has shown that jealousy relates negatively to satisfaction in actors, and in some cases, partners (e.g., Brauer et al., 2021; De Cristofaro et al., 2022). Contrary to prior research, we used a multi-faceted operationalization of relationship satisfaction (Siffert & Bodenmann, 2010), including positive (e.g., sexual satisfaction) and negative (mistrust toward the partner and feeling constrained by the relationship) evaluations of the relationship, which allowed us to examine the associations with fine-grained aspects of satisfaction. In line with prior research, we expected negative relationships between the MJS and positive aspects of satisfaction (e.g., Attridge, 2013; Brauer et al., 2021). Also, we expected that the MJS would relate positively to the facet of mistrust in actors, as prior research had linked jealousy and (mis)trust theoretically and empirically (e.g., Kemer et al., 2016; Rodriguez et al., 2015). Finally, we assumed that greater jealousy would relate to greater experiences of constraint in *partners* because those high in jealousy might react to relationship threats by behaviors that they consider protective for the relationship (e.g., asking their partner to stop contacting or meeting with others) but are perceived as constraining by partners.

Method

Participants and Procedure. Sixty-nine mixed-gender couples ($N = 138$ participants) who were together for an average of 6.6 years ($SD = 8$, median = 3.3) participated in this study. The women were between 18 and 65 years old ($M = 28.2$, $SD = 10.9$), and the men were between 18 and 85 years old ($M = 30.7$, $SD = 13.1$). We collected the data of the first wave (T1) between

January and April 2019 with an online questionnaire (including a demographic questionnaire and the German MJS). The participants received the link to the second online questionnaire (T2, including the MJS and a measure of satisfaction) between August and September 2019 via the email address they reported at T1. Inclusion criteria were (a) being at least 18 years of age, (b) being part of a mixed-gender couple and willing to forward the link to the online questionnaire to their partner, and (c) being willing to participate at a second time about half a year later. We advertised the study as “research on personality in relationships.” There was no financial compensation for participation. Completion took about 5 min at T1 and about 10 min at T2. We only downloaded and analyzed complete data sets (i.e., containing data of both partners at both assessment waves).

Power computations using APIMPowerR (Ackerman & Kenny, 2016) showed that our sample size allowed us to detect medium-to-large effect sizes (.23 and higher) for actor and partner effects with 82% power and 5% Type I error rate.

Instruments. The participants completed the German translation of the MJS as in Study 1 at T1 and T2. At T2, the participants completed the Relationship Quality Questionnaire (RQQ) by Siffert and Bodenmann (2010). The RQQ is a multidimensional measure of relationship satisfaction and assesses negative experiences in one's relationship (mistrust and constraint) and positive experiences (engagement, future orientation, sexual satisfaction, and being fascinated by the partner) with 26 items. The RQQ is frequently used in research on relationship quality in German-speaking samples (e.g., Körner & Schütz, 2021).

Data Analysis. We computed a CFA in line with Study 1 to replicate findings on the MJS's factor structure. We examined the longitudinal associations between MJS scores (assessed at T1) and the relationship satisfaction (T2) of actors and partners by conducting APIM (Cook & Kenny, 2005) analyses. We computed the analyses in Mplus 8.8 (Muthén & Muthén, 1997–2019). As recommended by Cook and Kenny (2005), we examined the fit of a parsimonious model, with equal actor- and partner effects for men and women, in comparison to a saturated model (i.e., assuming unique actor and partner effects for men and women). The former simplified the model and increased power, as parameter estimation was reduced. We compared the models by chi-square difference tests and accepted the parsimonious model when the difference was not statistically significant. As recommended by Cook and Kenny, we report

unstandardized path coefficients (b) and computed p -values on the basis of bootstrapped ($k = 5,000$ random samples) standard errors.

Results and Discussion

Confirmatory Factor Analysis. We tested the three-correlated-factors model that fit the data best in Study 1 and found comparable fit indexes, with RMSEA = 0.083 (95% CI [0.072, 0.094]), CFI = 0.912, TLI = 0.902, and $\chi^2 = 484.97$ ($p < .001$).³ The factor intercorrelations were .29 (emotional-cognitive), .41 (emotional-behavior), and .63 (cognitive-behavior). Again, the findings indicated stability and a comparatively good fit for the original three-factor solution of the MJS.

Reliability. The internal consistencies were $\alpha = .82$, .88, and .70 (cognitive, emotional, and behavior scales, respectively) at T1 and .85, .87, and .72 at T2. The McDonald's ω coefficients were .87, .89, and .66 for the cognitive, emotional, and behavior scales, respectively, at T1 and $\omega = .89$, .88, and .70 at T2.⁴ The findings support the reliability of the MJS. Again, when analyzing couples, the internal consistency of the behavior scale was comparatively lower than the other scales and in comparison to samples that were heterogeneous regarding relationship status and comprised individuals that were in a relationship as well as singles (cf. Study 1). Analysis of the “alpha, if item deleted” coefficients did not show that elimination of any item would increase the internal consistency. Clarification of this finding might need attention in future research.

Predictive Validity (APIM Analyses). Table 4 gives the actor- and partner effect coefficients of the APIM analyses. Most effects were independent of gender. As expected, each type of jealousy predicted mistrust in actors ($bs \geq 0.32$, $ps < .001$). Emotional jealousy related additionally to *partners' mistrust* ($b = 0.21$, $p = .012$). Similarly, cognitive jealousy predicted feelings of constraint by the partnership in actors ($b = 0.48$, $p < .001$). The same was true for emotional jealousy, but only in men ($b = 0.53$, $p < .001$), not women ($b = 0.02$, $p = .918$). As expected, there was also spillover to the *partner's* experiences of constraint (emotional: $b = 0.47$, $p < .001$).⁵

When inspecting the positively valued facets of satisfaction, cognitive jealousy predicted actors' engagement and future expectations regarding the relationship negatively ($bs > |0.33|$, $ps < .031$). Also, cognitive jealousy predicted that partners would be less fascinated (only men: $b = -0.41$, $p = .008$). Against expectations, partners reported greater sexual satisfaction when their respective partners engaged in jealous behaviors ($b =$

Table 4. Actor and Partner Effects of Jealousy Predicting Relationship Satisfaction Facets.

RQQ	Cognitive		Emotional		Behavior	
	Actor	Partner _{F/M}	Actor _{F/M}	Partner _{F/M}	Actor	Partner
Mistrust	0.54***	0.10	0.40***	0.21*	0.32***	0.05
Constraint	0.48***	0.23	0.53***/0.02	0.47***	0.19	0.13
Engagement	−0.33*	−0.12	−0.01	−0.68**/−0.04	−0.09	−0.01
Fascination	−0.10	−0.41**/0.08	−0.18	−0.02	−0.01	−0.09
Future	−0.50**	−0.23	−0.02	−0.24	−0.28	0.08
Sexual	−0.08	−0.01	−0.08/0.24	0.41**/−0.04	−0.14	0.17*

Note. RQQ = Relationship Quality Questionnaire. Two-tailed. Bootstrapped ($k = 5,000$ samples) p -values. Unstandardized regression coefficients. $N = 69$ couples.

* $p < .05$. ** $p < .01$. *** $p < .001$.

0.17, $p = .026$) and emotional jealousy (only men: $b = 0.41$, $p = .007$).

The longitudinal APIM analyses met expectations and supported the predictive validity of the MJS. Using the fine-grained measure of satisfaction allowed us to examine the differential longitudinal effects of jealousy on components of satisfaction. As expected, the MJS robustly related to negative experiences in relationships, namely, mistrust and feelings of constraint in actors, and we observed a spillover of actors' jealousy to their partners' satisfaction. Similarly, jealousy related negatively to actors' and partners' positive aspects of their relationships, namely, less future orientations, engagement, and being fascinated by their partners, in line with findings showing the detrimental effects of jealousy on relationship satisfaction (e.g., Attridge, 2013; Brauer et al., 2021). Contrary to expectations, emotional and behavioral jealousy predicted sexual satisfaction positively in partners. This lends partial support to Pfeiffer and Wong's (1989) notion that jealousy might exert positive effects on relationships, for example, that partners might use jealousy as a mate retention strategy because it signals commitment (see also Buss, 1988).

Conclusion of Study 2

To the best of our knowledge, this study represents the first instance of employing the MJS in a longitudinal examination specifically focused on couples. Our findings provide further support for the replicability of the measurement model in another independent sample and for the predictive validity by showing actor- and partner effects on facets of relationship satisfaction. The findings also contribute to the literature on the effects of jealousy by showing the differential nature of positive and negative effects regarding relationship quality discussed for decades (e.g., Buss, 1988, 2018; Pfeiffer & Wong, 1989). Note that our validity analyses were based on the study of the actor- and partner effects. The APIM also

allows to address questions that involve testing the equality of partners' means and variances (e.g., whether partners show equal levels in the outcome variable after adjusting for both partners' predictors; see Kenny & Ledermann, 2010).

Our study has several limitations. Our sample size allowed us to detect only medium-to-large effect sizes. Also, we again relied on self-reports. Prior research has shown the contribution of including partner perceptions in dyadic studies (Brauer et al., 2021), and we recommend that future research considers the inclusion of partner reports using the MJS when studying jealousy in couples. Finally, we only studied mixed-gender couples, and replication in same-gender couples is desirable to expand our findings' generalizability.

General Discussion

Our studies provide initial evidence for the reliability and validity of the frequently used MJS (Pfeiffer & Wong, 1989). Across four independent samples comprised of individuals and couples, we found robust evidence for the three-factor structure proposed by Pfeiffer and Wong. Alternative measurement models including a general factor showed bad model fit. Hence, we do not recommend using a total MJS score, and this implies that research relying on total scores from the MJS should be interpreted cautiously. MI analyses showed scalar invariance, thus showing psychometric equivalence between partners and allowing for the interpretation of gender differences in MJS scores.

Across both studies, internal consistency estimates support the good reliability of the MJS, especially when considering the comparatively low number of items per scale. However, in both studies, the behavioral scale showed lower internal consistencies in couples, and while we did not find evidence that a single item is problematic, future research might further examine response behaviors and interpretations of items of this scale (e.g., with cognitive interviews).

External validity findings met expectations when localizing the MJS into broad and narrow traits. We replicated associations between the MJS and the Big Five personality traits, attachment styles, life satisfaction, DT traits, and dispositions toward ridicule and being laughed at (Attridge, 2013; Brauer et al., 2021; Elphinston et al., 2011; Knobloch et al., 2001). Also, we extended the nomological network of the MJS toward maladaptive personality traits and adult playfulness. To our knowledge, our data were the first pertaining to the role of personality pathology in terms of the *DSM-5* alternative model of personality disorders regarding dimensions of jealousy, which should expand the knowledge in the field of pathological expressions in both personality and perceptions of threats to romantic relationships (e.g., van Peer, 2023). In Study 2, the MJS predicted facets of relationship satisfaction in couples when using longitudinal APIM analyses. Thus, our data also support the predictive validity of the MJS.

Taken together, our findings support the use of the MJS when studying jealousy. However, we critically note that the item wordings limit the use of the MJS because several items ask about how the respondent deals with their partner interacting with someone of the opposite sex. This excludes the possibility that jealousy can also be evoked by a romantic rival that is not of the opposite gender and partially excludes scenarios with which lesbian, gay, bisexual, transgender, intersex, and queer/questioning, asexual (LGBTIQA +) persons can identify with and relate to. Considering the increasing interest in the study of jealousy in non-heterosexual couples (e.g., Valentova et al., 2022), more knowledge on the MI between couples of different gender compositions and a potential revision of the MJS or the introduction of an LGBTIQA + -appropriate version is desirable for future research.

Also, the item content of the MJS does not encompass jealousy-evoking situations that involve social media. Recently, self-report instruments have been introduced for the assessment of “digital jealousy,” which involves, for example, how one reacts to observing the partner liking a potential rival’s social media posts on platforms such as Instagram or Facebook (e.g., Gubler et al., 2023). Gubler et al. found digital jealousy to robustly relate to the MJS and show incremental validity in relation to external outcomes. Thus, for the comprehensive assessment of jealousy in the 21st century, we recommend supplementing the MJS with measures of digital jealousy, particularly when the latter is expected to play a role in the research context.

Finally, our findings also provide evidence for the good psychometric properties of the German version of the MJS and should provide more confidence in cross-cultural research projects that include data from a

German-language MJS administration. This will further help better understand how jealousy manifests itself and is understood within different cultural contexts (e.g., the role of societal hierarchies, individualism, cultural norms, values, or social dynamics). This might also enable researchers to replicate and extend previous studies conducted in different languages for German-speaking countries. Ideally, related research findings can be applied and generalized across different populations from different countries. Inclusivity in the study of jealousy will lead to a broader understanding of what jealousy means in a cross-cultural context.

Limitations and Future Directions

Our studies have several limitations. As noted, Study 1’s findings on the nomological net relied on self-reports and potentially overestimated correlations through common-method bias (Campbell & Fiske, 1959). Study 2 provided the first findings on the longitudinal stability of MJS scores since Pfeiffer and Wong’s (1989) initial study. While our findings were based on a larger sample than Pfeiffer and Wong’s and indicated greater stability for the behavior scale, future research should examine its retest reliability with sufficiently large samples ($N > 250$; Watson, 2004) and track the change of scores through multiple retest intervals (e.g., 1-, 2-, 3-, and 4-week intervals) to learn more about the true change and to allow for modeling latent change in jealousy as assessed with the MJS, allowing one to separate change from error (Chmielewski & Watson, 2009).

Conclusion

Our studies extend the knowledge of the psychometric qualities of one of the most frequently used measures of jealousy, Pfeiffer and Wong’s (1989) MJS. Across four samples of individuals (Samples 1 and 3) and couples (Samples 2 and 4) we found support for the measurement model comprising three correlated factors representing cognitive, emotional, and behavioral expressions of jealousy, whereas models that included a total MJS score performed considerably less well. Moreover, we found measurement invariance between partners from couples. Hence, we advise against using total MJS scores. Furthermore, the internal consistency estimates provide support for the reliability of the three scales but also show that there is room for more research on the instrument’s retest reliability. Finally, we conclude that the validity was well-supported when localizing the MJS scores in broad and narrow traits in the nomological net found in earlier research when using cross-sectional data from a sample comprised of individuals who were single or in relationships and when analyzing longitudinal

dyadic data showing that the MJS scores predict facets of relationship satisfaction in couples. We hope that our findings and recommendations support and stimulate future research that uses and further expands on the knowledge of the psychometric qualities of the MJS.

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Data Availability statement

All data and syntaxes to reproduce the findings are openly available in the Open Science Framework: <https://osf.io/cmh6n/>

Open Science Statement

All data and syntaxes to reproduce the present studies' findings are provided in the Open Science Framework under <https://osf.io/cmh6n/>. We report how we determined our sample size, all data exclusions, and all measures in the study.

Supplemental Material

Supplemental material for this article is available online.

Notes

1. We thank one anonymous reviewer for their suggestion to also examine bifactor models. These allow one to model specific factors representing subscales and a general factor representing the total score (Reise, 2012). We computed confirmatory bifactor models, with each item being loaded by their specific factor (subscale) and a general factor of jealousy representing the total score, but these models did not converge. We then computed exploratory bifactor models in which each item was loaded by the three specific factors and the general factor. The findings showed that the loading structure was unstable because it did not

replicate across samples. Also, several items showed negligible loadings on the general factor across samples. For example, Item 9 showed loadings between .08 and .25 on g; Item 12 showed loadings between $-.01$ and .19; Item 13 showed loadings between $-.07$ and .02; and Item 14 showed loadings between .02 and .10. Overall, the bifactor models with three specific factors and a general factor did not represent the measurement model of the MJS well and did not support the notion of a total score of the MJS either. All loadings and fit coefficients are available in Supplemental Table S2.

2. A regression analysis predicting cognitive jealousy scores by the PID-5 domains after controlling for age and gender showed that negative affect ($\beta = .26$) and antagonism ($\beta = .16$, $ps < .001$) were robust predictors (remaining $\beta s \geq .09$, $ps \geq .060$). The same approach showed that behavioral jealousy was best predicted by antagonism ($\beta = .29$) and negative affect ($\beta = .20$, $ps < .001$).
3. The SRMR does not perform well in samples with $N < 200$ and is therefore not reported here (Asparouhov & Muthén, 2018).
4. The correlations between T1 and T2 were invariant for men and women regarding cognition ($r = .78$; bootstrapped 95% CI [.70, .84]) and behavior ($r = .73$ [.61, .82]; $\chi^2 < 1.50$, $ps \geq .490$). The T1–T2 correlations differed between partners for the emotion scale and were .83 [.75, .89] for the women and .60 [.38, .77] for the men.
5. There was also a partner effect of cognitive jealousy ($b = 0.23$), but the coefficient failed to reach statistical significance ($p = .062$) and requires replication in future research.

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