### **ORIGINAL ARTICLE**



# Love as a Commitment Device

# **Evidence from a Cross-Cultural Study across 90 Countries**

Marta Kowal · Adam Bode · Karolina Koszałkowska · S. Craig Roberts · Biljana Gjoneska · David Frederick, et al. [full author details at the end of the article]

Accepted: 6 November 2024 © The Author(s) 2024

Published online: 27 December 2024

#### **Abstract**

Given the ubiquitous nature of love, numerous theories have been proposed to explain its existence. One such theory refers to love as a commitment device, suggesting that romantic love evolved to foster commitment between partners and enhance their reproductive success. In the present study, we investigated this hypothesis using a large-scale sample of 86,310 individual responses collected across 90 countries. If romantic love is universally perceived as a force that fosters commitment between long-term partners, we expected that individuals likely to suffer greater losses from the termination of their relationships—including people of lower socioeconomic status, those with many children, and women—would place a higher value on romantic love compared to people with higher status, those with fewer children, and men. These predictions were supported. Additionally, we observed that individuals from countries with a higher (vs. lower) Human Development Index placed a greater level of importance on romantic love, suggesting that modernization might influence how romantic love is evaluated. On average, participants worldwide were unwilling to commit to a long-term romantic relationship without love, highlighting romantic love's universal importance.

**Keywords** Romantic love  $\cdot$  Importance of love  $\cdot$  Evolutionary theory  $\cdot$  Parental Investment theory  $\cdot$  Kephart  $\cdot$  Emotion

Love is a ubiquitous experience transcending cultural boundaries (Jankowiak & Fischer, 1992; Kowal et al., 2024) and temporal constraints (Hatfield et al., 2012). The nature of love is multifaceted: Humans can feel love for partners, parents, siblings, relatives, friends, other people, pets, and even god (Machin, 2022). In the present work, we focus specifically on romantic love, that is, the love felt for a partner within the context of a romantic relationship (Graham, 2011). Romantic love is commonly divided into at least two subtypes: Passionate love, felt very intensely and experienced most commonly at the beginning of the romantic relationship, and



companionate love, which is felt less intensely and experienced most commonly at later stages of the relationship (Walster & Walster, 1978).

A number of theoretical frameworks have been developed to explain love's existence and underlying function. For instance, some scholars have suggested that romantic love emerges from attachment mechanisms (Hazan & Shaver, 1987; Mikulincer & Shaver, 2018; Shaver et al., 1996), initially forming between infants and caregivers (Bowlby, 1979) before later being co-opted into adult romantic relationships (Bode, 2023). Fisher et al. (2006) have posited that romantic love is one of the primary brain systems that evolved to maintain the pair bond for the purpose of reproduction. In a similar vein, other scholars have postulated that love is an adaptation designed to motivate behavioral commitment (Fletcher et al., 2015; Frank, 1988).

The concept of love as a commitment device was first proposed by Frank (1988) and was later elaborated by Fletcher et al. (2015). This perspective, rooted in evolutionary theory, suggests that love is designed to down-regulate interest in available alternatives and signal this reduction in interest to a partner, motivating commitment to one's relationship. Human ancestors who signaled romantic love are hypothesized to have more frequently formed enduring pair bonds with their romantic partners than those who did not (Bales et al., 2021), which might have maximized their reproductive success. Thus, the propensity to feel romantic love proliferated to become a universal (or near-universal) human experience (Jankowiak & Fischer, 1992; Kowal et al., 2024).

Romantic love played (and still plays) a crucial role in the provision of psychological and emotional resources, caregiving, increased fidelity, sharing of resources, and co-parenting (Bode & Kushnick, 2021; Sorokowski et al., 2017). Romantic love might be a glue that holds partners together and helps them overcome life obstacles (Coleman, 1988). If, as Frank (1988) argued, romantic love is missing, partners might not stay faithful to each other. Once a better mate becomes available, a purely rational agent would pursue the new and more desirable partner. However, romantic love, in motivating irrational disinterest in romantic alternatives, can reassure one's partner of their mutual commitment and signal a willingness to stay together through thick and thin (Buss, 2019).

If the primary function of romantic love is to promote commitment, then romantic love should be universally preferred when selecting a long-term partner. Crosscultural evidence supporting this notion comes from Buss's (1989) seminal study, which surveyed over 10,000 participants from 33 countries, asking them to rank the importance of 18 characteristics in a long-term mate. Among both women and men, love was rated as the most important characteristic in a mate (Buss et al., 1990).

Romantic love's function to assure partners of one's dedication and faithfulness might become especially crucial when times are challenging. Tan et al. (2020) suggested that romantic commitment might be particularly important for individuals of lower socioeconomic status (SES) because they have fewer material incentives with which to secure their social partners. Moreover, those with fewer resources may require resource provisioning from a partner more urgently. Committed partners provide support that alleviates stress (Bolger & Amarel, 2007), which might be more commonly experienced by people of lower SES



(Marmot, 2007). Low SES individuals also experience additional stressors that can lead to conflict and higher rates of divorce, increasing the importance of love in maintaining the pair bond during challenging economic situations (Harsoyo & Darmawan, 2023; Karney, 2021; Raz-Yurovich, 2012).

Additionally, the signaling function of love as a commitment device might be particularly crucial for women. According to parental investment theory (Trivers, 1972; for a review, see Mogilski, 2021), males and females incur varying reproductive costs, leading to sex differences in mating strategies. Women bear considerable biological burdens associated with childbearing, including the protracted and costly processes of pregnancy, childbirth, and lactation. By contrast, men may contribute as little as providing genetic material through sperm donation. Given the potential losses that women face if their partner leaves them (and their offspring), human females are hypothesized to be both more selective when choosing romantic partners relative to men (Kanin et al., 1970; Knox & Sporakowski, 1968) and more skeptical of men's displays of commitment (Haselton & Buss, 2000). Thus, if love acts as a signal of commitment, women might value romantic love more than men.

Finally, the signaling function of love might be particularly important for those with multiple children. Having children together forms strong bonds between partners (Bellido et al., 2013; Onyishi et al., 2012). Thus, the likelihood of divorce is inversely correlated with the number of children (Bellido et al., 2013; Xu et al., 2015), despite evidence suggesting that having children often adversely affects marital satisfaction (Bogdan et al., 2022; Kowal et al., 2021). Moreover, parenting more children tends to be more demanding (Vigouroux & Scola, 2018), creating a greater need for support from a partner (Feinberg, 2003). A deeply committed and loving partner might come to the rescue when a parent's resources are depleted; this help and care for one's partner is motivated by romantic love (Sternberg, 1986). Thus, individuals with more children may value love more.

To test these possibilities, we relied on Kephart's (1967) question, which assesses the importance of romantic love when considering a marriage partner. As a social institution, marriage is recognized across all cultures and is universally associated with a long-term romantic commitment between individuals (Bethmann & Kvasnicka, 2011; Grossbard-Shechtman, 2019; Karney & Bradbury, 2020). This type of long-term commitment is precisely what romantic love is hypothesized to have evolved to support (Fletcher et al., 2015).

Prior research employing Kephart's question has primarily focused on sex differences in the importance of romantic love, yielding conflicting results. Four studies have supported the finding that men value romantic love more highly than women, with varying effect sizes (Cohen's d=0.88 [large] in Sprecher & Toro-Morn, 2002; Cohen's h=0.85 [large] in Kephart, 1967; h=0.16 [very small] in Simpson et al., 1986; h=0.03 [very small] in Pavlou, 2009). In contrast, three studies found the opposite, indicating that women value romantic love more than men (averaged Cohen's h=-0.52 [medium] in Sprecher et al., 1994; d=-0.19 [very small] in Sprecher & Hatfield, 2017; h=-0.13 [very small] in Allgeier & Wiederman, 1991), while one study reported no significant sex difference (d=0 in Adamczyk, 2019).



Additionally, three studies have documented cross-cultural differences in the perceived importance of romantic love when considering long-term romantic relationships (Levine et al., 1995; Sprecher et al., 1994; Sprecher & Toro-Morn, 2002). These cross-cultural differences may be partially explained by varying levels of country-level modernization. Previous research has provided evidence that romantic love may be more highly valued in more modernized countries (Baumard et al., 2022; Sorokowski et al., 2023). To account for this, we included the Human Development Index (HDI; United Nations, 2023) as a control variable in our analyses. A detailed summary of existing studies using Kephart's question can be found in Table S1 in the Supplementary Materials (SM).

To examine sex differences in the importance of romantic love and advance our understanding of the factors potentially explaining intra-individual differences in romanticism, we conducted a cross-cultural study on individuals from 90 countries. Drawing from love as a commitment device perspective, we hypothesized that when considering a long-term romantic relationship (i.e., marriage or registered partnership):

- **H1.** Individuals of lower SES value romantic love more than those of higher SES.
- **H2.** Women value romantic love more than men.
- **H3.** There is a positive relationship between the importance of romantic love and the number of children.

# **Material and Methods**

The study's procedure received approval from the first author's Institutional Review Board (IRB) at the Institute of Psychology, University of Wrocław. Before collecting data, all team members either received ethical approval from their local IRBs or acted on the ethical approval of the first author's IRB. All participants provided informed consent prior to participating in the survey. All data, R script, and Supplementary Material have been made publicly available at the OSF and can be accessed at https://osf.io/kw2h9.

# **Participants**

In total, 118,715 participants from 175 countries agreed to complete the survey in one of the 43 languages available. In the subsequent analyses, we included only data from participants who passed the attention check, were from countries with a minimum sample size of 30 individuals per country (Arend & Schäfer, 2019; Lieberoth et al., 2021), had no missing data on the main variables of interest, and reported being either women or men. The final sample included 86,310 individuals from 90 countries, among whom 58,195 (67%) were women and 30,326 (35%) were students. Ages ranged from 18 to 90 (M=30.11, SD=12.32). Detailed demographic profiles for each country can be found in Table S2 in the SM.



#### **Procedure**

We utilized a forward-back translation process (Kowal, 2024) to translate the survey into 45 linguistic versions, allowing people from diverse linguistic backgrounds to comfortably participate in our study. Each of the translation teams was provided with detailed instructions, available openly on the OSF (https://osf.io/kw2h9). Upon completion of the translation, data collection started in April 2021 and ended in August 2021. Most data were collected online, except in Algeria and Morocco, where collaborators used the paper-pencil method. The samples were pooled from diverse sources (such as social media, university mailing lists, newspapers, local community groups, and word-of-mouth advertising), which enabled us to include individuals of different ages, genders, and socioeconomic backgrounds (e.g., residents of small and large cities, community and university samples).

#### Measures

For the present analyses, we used the following measures:

**Importance of Love** To examine the importance of romantic love for long-term romantic relationships (Kephart, 1967), we asked participants the following question: "Assume you are currently not in a committed relationship. Imagine meeting a person who has all of the qualities you desired but who you aren't in love with. How likely would you be to marry this person/register your partnership with this person?" The response scale ranged from 0 (I would definitely not marry this person) to 100 (I would definitely marry this person), which we reverse-coded so that higher values indicated more importance placed on romantic love.

**Demographics** Participants were asked to self-report their SES by answering the question, "How good are your financial prospects?" Responses were indicated on an 11-point scale, ranging from 1, "Extremely poor financial prospects (Bottom 1 out of 100 people)" to 11, "Extremely good financial prospects (Top 1 out of 100 people)." Participants indicated their gender by choosing one of the following options: Male, Female, Nonbinary/Third gender, or "Prefer not to say." The number of children a participant could report ranged from "0" to "5 or more."

**Human Development Index (HDI)** We used the Human Development Index (HDI; United Nations, 2023) as a composite statistic for measuring and comparing levels of development between countries. HDI combines the nation's longevity (life expectancy at birth), education (mean years of schooling completed at 25 years old and years of schooling expected for a child), and income (Gross National Income per capita); it is a frequently used proxy of countries' modernization level (e.g., Sorokowski et al., 2023).



# **Statistical Analyses**

In the first step, Pearson correlations of the main variables were computed. Normality of the variables was investigated using commonly recommended cutoffs of univariate kurtosis values no larger than |7| and skewness values no larger than |2| (Kim, 2013). To detect potential outliers, the Mahalanobis Distance for the variables of interest was calculated using a cutoff of p < .001. Individual-level SES and the number of children were country-mean centered, and HDI was grand-mean centered. The importance of the love variable was reverse-coded so that higher scores represented more importance placed on love.

In the next step, multilevel models were conducted, with the importance of love score as the outcome variable and participants nested within the countries. The first null model included only the intercept. The second model introduced the predictor variables, including country-level HDI, individual-level SES, dummy-coded gender (with men as a reference category), and the number of children. In the third model, individual-level slopes were freed. The models were then compared using the Bayesian Information Criterion (BIC) and Akaike Information Criterion (AIC), with a better fit being suggested by changes in the BIC and AIC between the two models exceeding 10 (Burnham & Anderson, 2004; Raftery, 1995). All analyses were performed in R (version 4.3.1).

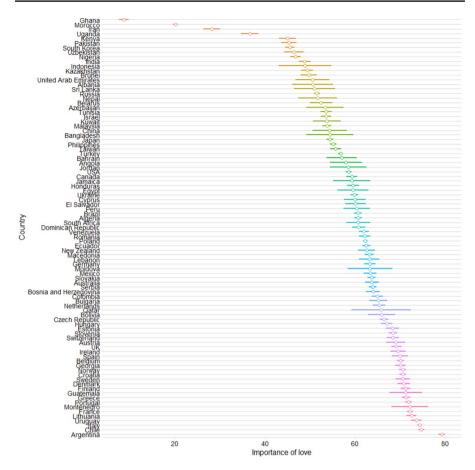
# Results

Figure 1 presents the average scores for the importance of love when considering a long-term romantic relationship across countries. The Pearson correlations between the variables of interest are shown in Table S3 in the SM. All the variables, except for the number of children, were within the expected range of kurtosis and skewness values. The number of children variable had one unit added and was log-transformed, which improved skewness values (from 2.082 to 1.490). However, because the pattern of results was virtually the same and the differences in the coefficient values were marginal, we decided to retain the original number of children variable in all analyses. Similarly, the Mahalanobis Distance inspection suggested that data from 949 individuals might be considered outliers, but analyses with the data included and excluded yielded the same pattern of results. Thus, the analyses we report herein are performed using the complete dataset, without excluding any outliers.

When comparing the BIC and AIC, the second model had a better fit than the first ( $\Delta$ BIC=38555,  $\Delta$ AIC=38592), and the third had a better fit than the second ( $\Delta$ BIC=299,  $\Delta$ AIC=383). Hereafter, we present the results of the third model (for BIC and AIC of all models, see Table S4 in the SM). However, it is noteworthy that the second and third models yielded a nearly identical pattern of results.

Table 1 presents the results of the multilevel analysis. Across nearly all the countries in our sample, participants highly valued romantic love when considering a long-term romantic relationship (Fig. 1). Support was found for all three hypotheses. Individuals of lower SES valued romantic love more than those of higher SES (H1). Romantic love was more important for women than for men





**Fig. 1** Mean ratings of the importance of romantic love when considering a long-term romantic relationship across countries (error bars represent standard errors)

Table 1 Results of the multilevel model with the importance of romantic love when considering a long-term romantic relationship as an outcome variable

Fixed effects	β	SE	95% CI	p
HDI	0.128	0.022	[0.084, 0.172]	< 0.001***
SES	-0.043	0.007	[-0.056, -0.029]	< 0.001***
Gender	0.240	0.016	[0.208, 0.271]	< 0.001***
Children	0.027	0.005	[0.017, 0.038]	< 0.001***
Random effects	Variance	SD		
Intercept	0.068	0.261		
SES	0.002	0.047		
Gender	0.014	0.117		
Children	0.001	0.032		
Residual	0.863	0.929		

<sup>\*</sup> p < .05, \*\* p < .01, \*\*\* p < .001. ICC = 0.073, Pseudo  $r^2 = 0.035$ ,  $df_{residuals} = 86,294$ , deviance = 232798.2

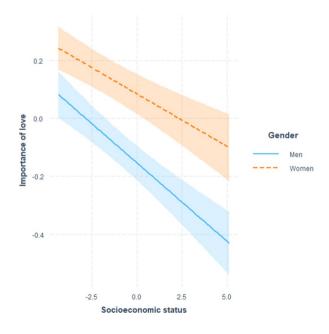


(H2). The more children participants had, the more value they placed on romantic love (H3). Additionally, individuals from countries with higher HDIs valued romantic love more than those from countries with lower HDIs.

Because the effect of gender yielded the largest effect size, we followed up the analyses with three models: One with the interaction terms with gender introduced, one for women only, and one for men only. The only significant interaction was with SES (Fig. 2). Importantly, the pattern of results was the same for both genders (for details, see Tables S5 and S6 in the SM). We also investigated the gender differences in the importance of love when considering a long-term romantic relationship within countries by computing Cohen's d values (see Table S7 and Figure S1 in the SM). Across countries, the average d value for the observed gender difference was -0.26. Only in Morocco and Tunisia did men value romantic love more than women.

In the final step, we tested the robustness of the negative association between SES and the importance of romantic love in the context of long-term relationships by re-running the analyses using an alternative self-reported measure of SES: social class. Participants responded to the question "Which of the following best describes your social class level?" with five possible answers: upper class (1), upper middle class (2), middle class (3), lower middle class (4), and lower class (5). The responses were reverse-coded, with higher values indicating higher social class. The results mirrored our initial findings (for details, see Table S8 in the Supplementary Materials).

Fig. 2 The interaction between the importance of love when considering a long-term romantic relationship and SES across men and women (shaded areas represent 95% confidence intervals)





### Discussion

In the present study, we tested hypotheses derived from the concept of love as a commitment device (Fletcher et al., 2015; Frank, 1988), which suggests that romantic love evolved as an adaptive mechanism that aids in maintaining a pair bond, thus enhancing lovers' reproductive success. Based on the analysis of 86,310 individuals across 90 countries, we observed that, when considering a long-term romantic relationship, romantic love was highly valued in nearly all the countries in our sample. Moreover, romantic love was particularly important for individuals of lower (vs. higher) SES (Hypothesis 1), women (vs. men; H2), and those with more (vs. fewer) children (H3). Additionally, we found evidence that when considering a long-term romantic relationship, romantic love was more important for participants from more (vs. less) modernized countries.

Our findings highlight love's role as a potent commitment mechanism with diverse implications for maintaining strong bonds within partnerships, albeit with important variation across cultures. Prior research provided evidence that even committed individuals may exhibit attentional bias toward attractive others (Ritter et al., 2010; Simpson et al., 1990), and romantic love priming is enough to suppress such thoughts of attractive alternatives (Gonzaga et al., 2008; Ma et al., 2015). Furthermore, romantic partners express their love and reassure their commitment to each other through nonverbal cues (Gonzaga et al., 2001). Romantic partners desire emotional and physical union (Sternberg, 1986), sometimes achieving it by including the partner in the cognitive self (Branand et al., 2019) or perceiving bodily overlap with the partner (Quintard et al., 2021). Finally, people worldwide indicated that romantic love is a crucial aspect of long-term romantic relationships, thus echoing the results of a cross-cultural study from almost half a century ago in which romantic love was found to be a critical mate preference (Buss, 1989).

According to the concept of love as a commitment device, romantic love acts as a cohesive force that binds partners together. Thus, when considering a long-term romantic relationship, romantic love is expected to be more important for individuals who have potentially more to lose in the event of romantic relationship dissolution, such as those from lower socioeconomic backgrounds, who may face difficulties in maintaining financial stability when left by their partners (Conger et al., 1997; McLanahan & Sandefur, 2009; Vyas & Dillahunt, 2017). By contrast, individuals from higher socioeconomic backgrounds are typically more satisfied with their income (Vera-Villarroel et al., 2015; Ward & King, 2019) and have more extensive economic resources to support themselves (Marmot, 2007). They are also more desirable as future spouses (for a review, see Shafer & James, 2013), perhaps due to more positive self-regard (Renger et al., 2024). Our study corroborates this perspective by finding evidence for a negative association between the importance of romantic love when considering a long-term romantic relationship and individual-level SES, though the strength of this association was not large.

Conversely, we observed a positive relationship between the importance of romantic love when considering a long-term romantic relationship and a proxy of country-level SES—the Human Development Index. This result, the second



strongest observed in the present study, is fascinating since it runs opposite to what we observed on the individual level (i.e., participants' SES). However, evolutionary scholars emphasize the impact of environmental conditions and cultural contexts on human cognition, behaviors, and emotions, leading to significant variations in ostensibly universal traits (Lewis et al., 2021). Thus, although romantic love is recognized as a culturally universal phenomenon (Jankowiak & Fischer, 1992; Kowal et al., 2024) and is hypothesized to have evolved to facilitate pair bonding and enhance reproductive success (Buss, 2019), cultural influences may nonetheless also shape evaluations of romantic love's importance (Cullen, 2022). Given that mass media and popular culture in more modernized countries often promote romantic love as a fundamental life goal (Dukes et al., 2003; Hefner & Wilson, 2013), it is unsurprising that individuals immersed in such cultural narratives value romantic love particularly highly. Interestingly, the ideal of romantic love depicted in mass media has also been extended to encompass not just one but multiple objects of love, with polyamory serving as one example (Hurson, 2016).

There is a common belief that men are more romantic than women (Orbuch, 2009), and empirical research has provided some support for this assertion. For instance, men typically score higher on the Romantic Beliefs Scale than women (Sprecher & Metts, 1989). Men also tend to fall in love and say "I love you" faster than women (Bode et al., 2024; Harrison & Shortall, 2011; Watkins et al., 2022). However, women place stronger emphasis on emotional connection than men (Buss, 1995; Shackelford & Buss, 1997).

According to parental investment theory (Trivers, 1972), these differences can be explained by considering the potential gains and losses an individual faces upon entering a romantic relationship. Initiating a relationship usually results in securing sexual access to the partner (Kislev, 2021). From an evolutionary perspective, this outcome is a highly desirable goal for men, carrying more potential benefits and fewer risks than for women, who, unlike men, face the possibility of becoming pregnant and incurring the high metabolic costs associated with pregnancy and lactation. Men's experience and expression of romantic love might signal their commitment, reassuring women about the durability of their relationship with their partners. Here, we predicted and found that women also valued romantic love more than men, with this association being the strongest among all the predictors in the present study.

From an evolutionary point of view, the ultimate goal of pair bonding is to facilitate the transmission of genes to subsequent generations (Buss, 2023). Romantic love may help accomplish this objective through initial sex drive, attraction, and pair bonding (Bode, 2023; Fisher, 1998). Once the objective is achieved and a romantic couple has children, nurturing them requires a substantial amount of energy and resources (Maroto, 2018), and as a result, the presence of both parents may be particularly crucial. This need might explain the greater emphasis on romantic love among parents of more children, as observed in our study. However, it should be noted that this association was the weakest among all our predictors. Previous studies conducted on populations inhabiting environments believed to more closely approximate human ancestral conditions suggest that children's survival rates are higher when both parents contribute to their provision (Winking et al., 2011), with



the effects of maternal care naturally higher than paternal care (for a review, see Sear & Mace, 2008).

It is important to note that romantic love ideals do not necessarily reflect actual feelings of love (Sternberg, 1986). Almost everyone—not only lovers—may view romantic love as crucial and associate it with long-term relationships (Mengzhen et al., 2024). However, numerous factors influence the actual experience of romantic love (Machin, 2022). Take SES as an example. Although individuals of lower SES may perceive romantic love as more important than those of higher SES, actual experiences of romantic love may be more intense among individuals of higher SES. Everyday challenges and financial struggles encountered by individuals of lower SES can contribute to increased conflict between partners and, in turn, hinder romantic love feelings (Neff & Karney, 2017).

Some studies have provided support for the notion that romantic love ideals and actual love experiences are distinct phenomena. For instance, Holmberg and Mac-Kenzie (2002) found that people's beliefs about how romantic relationships should unfold were unrelated to their actual experiences of romantic love. Other researchers have provided preliminary evidence that romantic scripts can influence actual love feelings, though through different mechanisms. On one hand, romantic beliefs may positively affect the intensity of love, particularly when the relationship is fulfilling (Soyer & Sünbül, 2023). On the other hand, reflecting on discrepancies between romantic ideals and actual experiences of love may lead to negative emotions and dissatisfaction with one's romantic relationship (Metz, 2007). This possibility helps contextualize the present results alongside previous findings; it offers another potential explanation for why individuals of lower SES, despite valuing romantic love more highly than those of higher SES, might still experience lower levels of romantic love feelings (Neff & Karney, 2017).

While our study provides novel insights into the concept of romantic love as a commitment device, it is essential to acknowledge several limitations that are common in cross-cultural research (Kowal et al., 2022; Sorokowski et al., 2023). First, the sample predominantly consisted of well-educated individuals, which does not fully represent the diverse populations of the countries included. Therefore, despite collecting data from a broad selection of countries, caution must be exercised in generalizing the results to all human cultures. Furthermore, we acknowledge that our assessment of SES primarily focused on resource capital, omitting other important dimensions, such as educational and cultural capital (for a discussion of different approaches to measuring SES, see Avvisati, 2020). Our primary analyses included assessments of financial prospects. These prospects are not limited to the current possession of wealth but reflect a capacity to acquire resources. Prior research has shown that ambition and industriousness can serve as important indicators of future wealth (Buss & Schmitt, 2019). However, the latter two items may also capture one's optimism. As a robustness check, we conducted a follow-up analysis using another SES measure: participants' self-reported social class. Importantly, the pattern of results remained consistent. While the distribution of self-reported SES in our sample was normal, individuals from lower SES backgrounds may still be underrepresented. Future



research could benefit from the use of more comprehensive SES measures, such as income, to capture participants' socioeconomic standing more precisely.

Second, we relied on a single-item question about the importance of romantic love when considering a long-term relationship (Kephart, 1967), and thus, standard measures of testing the scale's reliability cannot be applied (Cronbach, 1951). However, the rising popularity and acceptance of single-item measures underscore their utility (Jovanović & Lazić, 2020), with some scholars arguing that single-item measures perform comparably well to multi-item scales (Niehuis et al., 2024). Third, while Kephart's (1967) question serves as one approach to assessing the importance of romantic love when considering a long-term romantic relationship, future research could employ alternative measures, such as the Romantic Beliefs Scale (Sprecher & Metts, 1989). Fourth, Kephart's (1967) question employed in the present study was framed within the context of marriage and registered partnership. The institution of marriage is universally recognized (Bethmann & Kvasnicka, 2011; Grossbard-Shechtman, 2019; Karney & Bradbury, 2020), but considering the gradual decline in the importance of such relationships (Pew Research Center, 2010), some participants might have opposed the idea of engaging in marriage or a registered partnership and not the importance of romantic love in a long-term committed relationship per se. Such an attitude would result in the same pattern of responses in both cases: Not being eager to engage in a loveless marriage, regardless of the underlying reason. However, we deem this possibility unlikely, given that participants from Norway and Sweden countries with relatively low marriage rates—reported preferences for romantic love which mirrored the results from participants in countries with comparable HDI scores but higher marriage rates (United Nations, 2019). Fifth, because we asked participants a hypothetical question, we cannot draw definitive conclusions about how they would behave in real-life scenarios or even if they all understood the question in the same way.

Sixth, our focus was limited to a small number of factors that might explain differences in the perceived importance of romantic love in long-term relationships. It would be valuable to explore additional socio-cultural and demographic variables, such as relationship type, age, religion, cultural norms around romantic ideals, and attitudes toward marriage and divorce. For example, participants from Ghana, Morocco, and Iran placed the least emphasis on romantic love in the context of long-term relationships. Potential reasons for this may include cultural and religious influences. Specifically, participants from these countries had the highest scores on collectivistic values across all studied countries (with the highest averages in Ghana and Morocco, followed by Angola and Iran). Additionally, these countries also had the highest percentage of Muslim participants (with Morocco having the highest percentage, followed by Iran and Ghana). The historical prevalence of arranged marriages in these regions might also partly explain the observed findings (Parkin, 2021). However, if this were the primary factor driving the results, we would expect participants from India, where arranged marriages are highly prevalent (Jaiswal, 2014), to rate romantic love as least important compared to other countries. However, this was not the case. Other potential explanations for cross-cultural differences such as these warrant further investigation by cross-cultural scholars, who may be



interested in utilizing our publicly available data (which can be found on the OSF: https://osf.io/kw2h9).

In summary, our results provide evidence that romantic love is universally recognized as an important factor for long-term romantic relationships, supporting the concept of romantic love as a commitment device. We observed that, when considering a long-term relationship, romantic love was valued more highly by individuals for whom the endurance of their relationship might be more critical or who may face greater losses upon relationship dissolution—namely individuals of lower SES, women, and those with more children. We also found that romantic love was more important for individuals from more modernized countries, which aligns with previous studies suggesting the influence of culture on perceptions of romantic love (Baumard et al., 2022; Sorokowski et al., 2023). In conclusion, our findings underscore the role of romantic love as a pivotal commitment mechanism, shedding light on both its universal significance and cultural variability. Our study highlights its heightened importance among individuals facing socioeconomic challenges, gender disparities, and familial responsibilities while also revealing intriguing patterns across different national cultures.

**Acknowledgements** We would like to thank all the participants who participated in the study, and all individuals who helped in translating the survey and collecting the data.

Authors' Contributions Ma.K., A.B., K.K., S.C.R., B.G., D.A.F., A.S., D.D., D.G., T.A., P.P., C.G., H.Ç., D.A.D., R.B., C.B., Y.B., M.B., N.B., A.R.C., R.C., W.J.C., Y.D., S.D., I.D., E.E., F.F-R., T.F., F.E.G., T.G.Y., F.G., B.B.H., Me.K., M.L-B., S.L., T.M., M.M-L., Mo.M., Ma.M., I.L.G.N., M.D.O.F., Ma.C.T.P., M.P., F.P., E.P., K.P., U.R., M.S.R., A.Ş., F.Z.S., Ok.S., Og.S., S.T., J.U., M.V., T.V., A.W., G.Y., B.G., P.S. contributed to the study conception and design. Data collection was performed by Ma.K., B.G., D.A.F., A.S., D.D., D.G., T.A., P.P., C.G., H.Ç., D.A.D., R.B., C.B., Y.B., M.B., N.B., A.R.C., R.C., W.J.C., Y.D., S.D., I.D., E.E., F.F-R., T.F., F.E.G., T.G.Y., F.G., B.B.H., Me.K., M.L-B., S.L., T.M., M.M-L., Mo.M., Ma.M., I.L.G.N., M.D.O.F., Ma.C.T.P., M.P., F.P., E.P., K.P., U.R., M.S.R., A.Ş., F.Z.S., Ok.S., Og.S., S.T., J.U., M.V., T.V., A.W., G.Y., B.G., P.S. Data analysis was performed by Ma.K. The first draft of the manuscript was written by Ma.K., A.B., and K.K. Ma.K., A.B., K.K., S.C.R., B.G., D.A.F., A.S., D.D., D.G., T.A., P.P., C.G., H.Ç., D.A.D., R.B., C.B., Y.B., M.B., N.B., A.R.C., R.C., W.J.C., Y.D., S.D., I.D., E.E., F.F-R., T.F., F.E.G., T.G.Y., F.G., B.B.H., Me.K., M.L-B., S.L., T.M., M.M-L., Mo.M., Ma.M., I.L.G.N., M.D.O.F., Ma.C.T.P., M.P., F.P., E.P., K.P., U.R., M.S.R., A.Ş., F.Z.S., Ok.S., Og.S., S.T., J.U., M.V., T.V., A.W., G.Y., B.G., P.S. read and approved the final draft of the manuscript.

**Funding** This study was made possible by the funds from the National Science Centre (2019/33/N/ HS6/00054). Marta Kowal was supported by the Foundation for Polish Science (FNP) START scholarship. Dmitrii Dubrov and Dmitry Grigoryev were supported within the Basic Research Program at the National Research University Higher School of Economics (HSE University). Toivo Aavik was supported by the Estonian Research Council grant (PRG2190).

**Data Availability** All data, R script, and Supplementary Material have been made publicly available at the OSF and can be accessed at <a href="https://osf.io/kw2h9">https://osf.io/kw2h9</a>.

#### **Declarations**

Ethics Statement and Informed Consent The study's procedure received approval from the first author's Institutional Review Board (IRB) at the Institute of Psychology, University of Wrocław. Before collecting data, all team members either received ethical approval from their local IRBs or acted on the ethical approval of the first author's IRB. All participants provided informed consent prior to participating in the survey.



**Conflict of Interest** The authors declare that they have no conflict of interest.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <a href="http://creativecommons.org/licenses/by/4.0/">http://creativecommons.org/licenses/by/4.0/</a>.

# References

- Adamczyk, K. (2019). Marital and love attitudes as predictors of Polish young adults' relationship status. Current Issues in Personality Psychology, 7(4), 298–312. https://doi.org/10.5114/CIPP.2019.92561
- Allgeier, E. R., & Wiederman, M. W. (1991). Love and mate selection in the 1990s. Free Inquiry (Buffalo, N.Y.), 11, 25–27.
- Arend, M. G., & Schäfer, T. (2019). Statistical power in two-level models: A tutorial based on Monte Carlo simulation. *Psychological Methods*, 24(1), 1–19. https://doi.org/10.1037/met0000195
- Avvisati, F. (2020). The measure of socioeconomic status in PISA: A review and some suggested improvements. *Large-scale Assessments in Education*, 8(8), 1–37. https://doi.org/10.1186/s40536-020-00086-x
- Bales, K. L., Ardekani, C. S., Baxter, A., Karaskiewicz, C. L., Kuske, J. X., Lau, A. R., Savidge, L. E., Sayler, K. R., & Witczak, L. R. (2021). What is a pair bond? *Hormones and Behavior*, 136, 105062. https://doi.org/10.1016/j.yhbeh.2021.105062
- Baumard, N., Huillery, E., Hyafil, A., & Safra, L. (2022). The cultural evolution of love in literary history. *Nature Human Behaviour*, 6(4). https://doi.org/10.1038/s41562-022-01292-z. Article 4.
- Bellido, H., Molina, J. A., Solaz, A., & Stancanelli, E. G. F. (2013). Which children stabilize marriage? (Working Paper 7858). IZA Discussion Papers. https://www.econstor.eu/handle/10419/89859
- Bethmann, D., & Kvasnicka, M. (2011). The institution of marriage. *Journal of Population Economics*, 24, 1005–1032. https://doi.org/10.1007/s00148-010-0312-1
- Bode, A. (2023). Romantic love evolved by co-opting mother-infant bonding. Frontiers in Psychology, 14. https://doi.org/10.3389/fpsyg.2023.1176067
- Bode, A., & Kushnick, G. (2021). Proximate and ultimate perspectives on romantic love. *Frontiers in Psychology*, 12, 573123. https://doi.org/10.3389/fpsyg.2021.573123
- Bode, A., Luoto, S., & Kavanagh, P. S. (2024). Sex differences in romantic love: An evolutionary approach. https://doi.org/10.31234/osf.io/2cp5a
- Bogdan, I., Turliuc, M. N., & Candel, O. S. (2022). Transition to parenthood and marital satisfaction: A meta-analysis. *Frontiers in Psychology*, 13, 901362. https://doi.org/10.3389/fpsyg.2022.901362
- Bolger, N., & Amarel, D. (2007). Effects of social support visibility on adjustment to stress: Experimental evidence. *Journal of Personality and Social Psychology*, 92(3), 458–475. https://doi.org/10.1037/0022-3514.92.3.458
- Bowlby, J. (1979). The Bowlby-Ainsworth attachment theory. *Behavioral and Brain Sciences*, 2(4), 637–638. https://doi.org/10.1017/S0140525X00064955
- Branand, B., Mashek, D., & Aron, A. (2019). Pair-bonding as inclusion of other in the self: A literature review. Frontiers in Psychology, 10, 486125. https://doi.org/10.3389/fpsyg.2019.02399
- Burnham, K. P., & Anderson, D. R. (2004). Multimodel inference: Understanding AIC and BIC in model selection. *Sociological Methods & Research*, 33(2), 261–304. https://doi.org/10.1177/0049124104 268644
- Buss, D. M. (1989). Sex differences in human mate preferences evolutionary hypothesis tested in 37 cultures. *Behavioral and Brain Sciences*, 12(1), 1–14. https://doi.org/10.1017/s0140525x00023992
- Buss, D. M. (1995). Evolutionary psychology: A new paradigm for psychological science. *Psychological Inquiry*, 6(1), 1–30. https://doi.org/10.1207/s15327965pli0601\_1



- Buss, D. M. (2019). The evolution of love in humans. In R. J. Sternberg & K. Sternberg (Eds.), *The new psychology of love* (pp. 42–63). Cambridge University Press.
- Buss, D. M. (2023). The Oxford handbook of human mating. Oxford University Press.
- Buss, D. M., & Schmitt, D. P. (2019). Mate preferences and their behavioral manifestations. *Annual Review of Psychology*, 70(1), 77–110. https://doi.org/10.1146/annurev-psych-010418-103408
- Buss, D. M., Abbott, M., Angleitner, A., Asherian, A., Biaggio, A., Blanco-Villasenor, A., Bruchon-Schweitzer, M., Ch'U, H. Y., Czapinski, J., Deraad, B., Ekehammar, B., El Lohamy, N., Fioravanti, M., Georgas, J., Gjerde, P., Guttman, R., Hazan, F., Iwawaki, S., Janakiramaiah, N., & Yang, K. S. (1990). International preferences in selecting mates: A study of 37 cultures. *Journal of Cross-Cultural Psychology*, 21(1), 5–47. https://doi.org/10.1177/0022022190211001
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, 95–120. https://doi.org/10.1086/228943
- Conger, R. D., Conger, K. J., & Elder, G. H. (1997). Family economic hardship and adolescent adjustment: Mediating and moderating processes. In G. J. Duncan & J. Brooks-Gunn (Eds.), Consequences of growing up poor (pp. 288–310). Russell Sage Foundation.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334. https://doi.org/10.1007/BF02310555
- Cullen, N. (2022). Love. In K. Barclay & P. Stearns (Eds.), *The Routledge history of emotions in the modern world* (pp. 13–28). Routledge.
- Dukes, R. L., Bisel, T. M., Borega, K. N., Lobato, E. A., & Owens, M. D. (2003). Expressions of love, sex, and hurt in popular songs: A content analysis of all-time greatest hits. *The Social Science Journal*, 40(4), 643–650. https://doi.org/10.1016/S0362-3319(03)00075-2
- Feinberg, M. E. (2003). The internal structure and ecological context of coparenting: A framework for research and intervention. *Parenting: Science and Practice*, 3(2), 95–131. https://doi.org/10.1207/ S15327922PAR0302\_01
- Fisher, H. E. (1998). Lust, attraction, and attachment in mammalian reproduction. *Human Nature*, 9(1), 23–52. https://doi.org/10.1007/s12110-998-1010-5
- Fisher, H. E., Aron, A., & Brown, L. L. (2006). Romantic love: A mammalian brain system for mate choice. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 361(1476), 2173–2186. https://doi.org/10.1098/rstb.2006.1938
- Fletcher, G. J. O., Simpson, J. A., Campbell, L., & Overall, N. C. (2015). Pair-bonding, romantic love, and evolution: The curious case of Homo sapiens. *Perspectives on Psychological Science*, 10(1), 20–36. https://doi.org/10.1177/1745691614561683
- Frank, R. H. (1988). Passion within reason: The strategic role of the emotions. Norton.
- Gonzaga, G. C., Keltner, D., Londahl, E. A., & Smith, M. D. (2001). Love and the commitment problem in romantic relations and friendship. *Journal of Personality and Social Psychology*, 81(2), 247– 262. https://doi.org/10.1037/0022-3514.81.2.247
- Gonzaga, G. C., Haselton, M. G., Smurda, J., Davies, M. S., & Poore, J. C. (2008). Love, desire, and the suppression of thoughts of romantic alternatives. *Evolution and Human Behavior*, 29(2), 119–126. https://doi.org/10.1016/j.evolhumbehav.2007.11.003
- Graham, J. M. (2011). Measuring love in romantic relationships: A meta-analysis. *Journal of Social and Personal Relationships*, 28(6), 748–771. https://doi.org/10.1177/0265407510389126
- Grossbard-Shechtman, S. (2019). ). On the economics of marriage: A theory of marriage, labor, and divorce. Routledge.
- Harrison, M. A., & Shortall, J. C. (2011). Women and men in love: Who really feels it and says it first? The Journal of Social Psychology, 151(6), 727–736. https://doi.org/10.1080/00224545.2010. 522626
- Harsoyo, Y., & Darmawan, I. (2023). Socioeconomic factors leading to divorce in Gunungkidul Regency. *International Journal of Social Sciences*, 6(2). https://doi.org/10.21744/ijss.v6n2.2085
- Haselton, M. G., & Buss, D. M. (2000). Error management theory: A new perspective on biases in cross-sex mind reading. *Journal of Personality and Social Psychology*, 78(1), 81–91. https://doi.org/10.1037/0022-3514.78.1.81
- Hatfield, E., Bensman, L., & Rapson, R. L. (2012). A brief history of social scientists' attempts to measure passionate love. *Journal of Social and Personal Relationships*, 29(2), 143–164. https://doi.org/10.1177/0265407511431055
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52, 511–524. https://doi.org/10.1037/0022-3514.52.3.511



- Hefner, V., & Wilson, B. J. (2013). From love at first sight to soul mate: The influence of romantic ideals in popular films on young people's beliefs about relationships. *Communication Monographs*, 80(2), 150–175. https://doi.org/10.1080/03637751.2013.776697
- Holmberg, D., & MacKenzie, S. (2002). So far, so good: Scripts for romantic relationship development as predictors of relational well-being. *Journal of Social and Personal Relationships*, 19(6), 777–796. https://doi.org/10.1177/0265407502196003
- Hurson, M. (2016). *Networks of many loves: A history of alternative media in the polyamory movement.*The University of Colorado Boulder.
- Jaiswal, T. (2014). Indian arranged marriages: A social psychological perspective. Routledge.
- Jankowiak, W. R., & Fischer, E. F. (1992). A cross-cultural perspective on romantic love. *Ethnology*, 31(2), 149. https://doi.org/10.2307/3773618
- Jovanović, V., & Lazić, M. (2020). Is longer always better? A comparison of the validity of single-item versus multiple-item measures of life satisfaction. *Applied Research in Quality of Life*, 15(3), 675–692. https://doi.org/10.1007/s11482-018-9680-6
- Kanin, E. J., Davidson, K. R., & Scheck, S. R. (1970). A research note on male-female differentials in the experience of heterosexual love. *The Journal of Sex Research*, 6(1), 64–72. https://doi.org/10.1080/ 00224497009550646
- Karney, B. R. (2021). Socioeconomic status and intimate relationships. Annual Review of Psychology, 72, 391–414. https://doi.org/10.1146/annurev-psych-051920-013658
- Karney, B. R., & Bradbury, T. N. (2020). Research on marital satisfaction and stability in the 2010s: Challenging conventional wisdom. *Journal of Marriage and Family*, 82(1), 100–116. https://doi.org/10.1111/jomf.12635
- Kephart, W. M. (1967). Some correlates of romantic love. *Journal of Marriage and the Family*, 29(3), 470. https://doi.org/10.2307/349585
- Kim, H. Y. (2013). Statistical notes for clinical researchers: Assessing normal distribution (2) using skewness and kurtosis. Restorative Dentistry & Endodontics, 38(1), 52–54. https://doi.org/10.5395/rde. 2013.38.1.52
- Kislev, E. (2021). The sexual activity and sexual satisfaction of singles in the second demographic transition. Sexuality Research and Social Policy, 18(3), 726–738. https://doi.org/10.1007/s13178-020-00496-0
- Knox, D. H., & Sporakowski, M. J. (1968). Attitudes of college students toward love. *Journal of Marriage and Family*, 30(4), 638–642. https://doi.org/10.2307/349508
- Kowal, M. (2024). Translation practices in cross-cultural social research and guidelines for the most popular approach: Back-translation. *Anthropological Review*, 87(3), 19–32. https://doi.org/10.18778/1898-6773.87.3.02
- Kowal, M., Groyecka-Bernard, A., Kochan-Wójcik, M., & Sorokowski, P. (2021). When and how does the number of children affect marital satisfaction? An international survey. *Plos One*, 16(4), e0249516. https://doi.org/10.1371/journal.pone.0249516
- Kowal, M., Sorokowski, P., Pisanski, K., Valentova, J. V., Varella, M. A. C., Frederick, D. A., Al-Shawaf, L., García, F. E., Giammusso, I., Gjoneska, B., Kozma, L., Otterbring, T., Papadatou-Pastou, M., Pfuhl, G., Stöckli, S., Studzinska, A., Toplu-Demirtaş, E., Touloumakos, A. K., Bakos, B. E., & Zumárraga-Espinosa, M. (2022). Predictors of enhancing human physical attractiveness: Data from 93 countries. Evolution and Human Behavior, 43(6), 455–474. https://doi.org/10.1016/j.evolh umbehav.2022.08.003
- Kowal, M., Sorokowski, P., Dinić, B. M., Pisanski, K., Gjoneska, B., Frederick, D., Pfuhl, G., Milfont, T. L., Bode, A., Aguilar, L., García, Roberts, S. C., Villaverde, F. E., Kavčič, B. A., Miroshnik, T., Ndukaihe, K. G., Šafárová, I. L. G., Valentova, K., Aavik, J. V., Blackburn, T., & Sternberg, A. M. (2024). Validation of the short version (TLS-15) of the Triangular Love Scale (TLS-45) across 37 languages. Archives of Sexual Behavior, 53, 839–857. https://doi.org/10.1007/s10508-023-02702-7
- Levine, R., Sato, S., Hashimoto, T., & Verma, J. (1995). Love and marriage in eleven cultures. *Journal of Cross-Cultural Psychology*, 26, 554–571. https://doi.org/10.1177/0022022195265007
- Lewis, D. M. G., Al-Shawaf, L., Thompson, M. B., & Buss, D. M. (2021). Evolved psychological mechanisms. In *The SAGE handbook of evolutionary psychology: Foundations of evolutionary psychology* (pp. 96–119). Sage Reference. https://doi.org/10.4135/9781529739442.n6
- Lieberoth, A., Lin, S. Y., Stöckli, S., Han, H., Kowal, M., Gelpi, R., Chrona, S., Tran, T. P., Jeftić, A., Rasmussen, J., Cakal, H., Milfont, T. L., Lieberoth, A., Yamada, Y., Han, H., Rasmussen, J., Amin, R., Debove, S., Gelpí, R., & Dubrov, D. (2021). Stress and worry in the 2020 coronavirus pandemic: Relationships to trust and compliance with preventive measures across 48 countries in the



- COVIDiSTRESS global survey. *Royal Society Open Science*, 8(2), 200589. https://doi.org/10.1098/rsos.200589
- Ma, Y., Zhao, G., Tu, S., & Zheng, Y. (2015). Attentional biases toward attractive alternatives and rivals: Mechanisms involved in relationship maintenance among Chinese women. *PloS ONE*, 10(8), e0136662. https://doi.org/10.1371/journal.pone.0136662
- Machin, A. (2022). Why we love: The new science behind our closest relationships. Simon and Schuster. Marmot, M. (2007). The status syndrome: How social standing affects our health and longevity. Macmillan.
- Maroto, M. (2018). Saving, sharing, or spending? The wealth consequences of raising children. *Demography*, 55(6), 2257–2282. https://doi.org/10.1007/s13524-018-0716-1
- McLanahan, S., & Sandefur, G. D. (2009). *Growing up with a single parent: What hurts, what helps.* Harvard University Press.
- Mengzhen, L., Berezina, E., & Benjamin, J. (2024). Insights into young adults' views on long-term and short-term romantic relationships in the United Kingdom. *Sexuality & Culture*, 28, 1407–1423. https://doi.org/10.1007/s12119-023-10183-y
- Metz, J. L. (2007). And they lived happily ever after: The effects of cultural myths and romantic idealizations on committed relationships [Smith College]. https://scholarworks.smith.edu/theses/1318
- Mikulincer, M., & Shaver, P. R. (2018). Attachment theory as a framework for studying relationship dynamics and functioning. In A. L. Vangelisti & D. Perlman (Eds.), *The Cambridge handbook of personal relationships* (2nd ed., pp. 175–185). Cambridge University Press. https://doi.org/10.1017/9781316417867.015
- Mogilski, J. K. (2021). Parental Investment Theory. In T. Shackelford (Ed.), The SAGE handbook of evolutionary psychology (pp. 137–154). SAGE Publications Ltd. https://doi.org/10.4135/97815 29739442.n8
- Neff, L. A., & Karney, B. R. (2017). Acknowledging the elephant in the room: How stressful environmental contexts shape relationship dynamics. *Current Opinion in Psychology*, 13, 107–110. https://doi.org/10.1016/j.copsyc.2016.05.013
- Niehuis, S., Davis, K., Reifman, A., Callaway, K., Luempert, A., Oldham, C. R., Head, J., & Willis-Grossmann, E. (2024). Psychometric evaluation of single-item relationship satisfaction, love, conflict, and commitment measures. *Personality and Social Psychology Bulletin*, 50(3), 387–405. https://doi.org/10.1177/01461672221133693
- Onyishi, E. I., Sorokowski, P., Sorokowska, A., & Pipitone, R. N. (2012). Children and marital satisfaction in a non-western sample: Having more children increases marital satisfaction among the igbo people of Nigeria. *Evolution and Human Behavior*, 33(6), 771–774. https://doi.org/10.1016/j.evolhumbehav.2012.06.005
- Orbuch, T. L. (2009). 5 simple steps to take your marriage from good to great (1st edition). Delacorte Press.
- Parkin, R. (2021). Arranged marriages: Whose choice and why? Reflections on the principles underlying spouse selection worldwide. *History and Anthropology*, 32(2), 271–287. https://doi.org/10.1080/02757206.2021.1905255
- Pavlou, K. (2009). An investigation of the conceptualisation of romantic love across South Africa: A cross-cultural study. Dissertation. University of Johannesburg, Johannesburg.
- Pew Research Center (2010). The decline of marriage and rise of new families. https://www.pewresearch.org/social-trends/2010/11/18/the-decline-of-marriage-and-rise-of-new-families/
- Quintard, V., Jouffe, S., Hommel, B., & Bouquet, C. A. (2021). Embodied self-other overlap in romantic love: A review and integrative perspective. *Psychological Research Psychologische Forschung*, 85(3), 899–914. https://doi.org/10.1007/s00426-020-01301-8
- Raftery, A. E. (1995). Bayesian model selection in social research. *Sociological Methodology*, 25, 111–163. https://doi.org/10.2307/271063
- Raz-Yurovich, L. (2012). Economic determinants of divorce among dual-earner couples: Jews in Israel. European Journal of Population / Revue Européenne De Démographie, 28(2), 177–203. https://doi.org/10.1007/s10680-012-9256-3
- Renger, D., Lohmann, J. F., Renger, S., & Martiny, S. E. (2024). Socioeconomic status and self-regard. Social Psychology, 55(1), 12–24. https://doi.org/10.1027/1864-9335/a000536
- Ritter, S. M., Karremans, J. C., & van Schie, H. T. (2010). The role of self-regulation in derogating attractive alternatives. *Journal of Experimental Social Psychology*, 46(4), 631–637. https://doi.org/10.1016/j.jesp.2010.02.010



- Sear, R., & Mace, R. (2008). Who keeps children alive? A review of the effects of kin on child survival. Evolution and Human Behavior, 29(1), 1–18. https://doi.org/10.1016/j.evolhumbehav. 2007.10.001
- Shackelford, T. K., & Buss, D. M. (1997). Cues to infidelity. *Personality and Social Psychology Bulletin*, 23(10), 1034–1045. https://doi.org/10.1177/01461672972310004
- Shafer, K., & James, S. L. (2013). Gender and socioeconomic status differences in first and second marriage formation. *Journal of Marriage and Family*, 75(3), 544–564. https://doi.org/10.1111/jomf. 12024
- Shaver, P. R., Collins, N., & Clark, C. L. (1996). Attachment styles and internal working models of self and relationship partners. *Knowledge structures in close relationships*. Psychology.
- Simpson, J. A., Campbell, B., & Berscheid, E. (1986). The Association between romantic love and marriage. Personality and Social Psychology Bulletin, 12(3), 363–372. https://doi.org/10.1177/0146167286123011
- Simpson, J. A., Gangestad, S. W., & Lerma, M. (1990). Perception of physical attractiveness: Mechanisms involved in the maintenance of romantic relationships. *Journal of Personality and Social Psychology*, 59(6), 1192–1201. https://doi.org/10.1037/0022-3514.59.6.1192
- Sorokowski, P., Sorokowska, A., Butovskaya, M., Karwowski, M., Groyecka, A., Wojciszke, B., & Pawłowski, B. (2017). Love influences reproductive success in humans. *Frontiers in Psychology*, 8, 1922. https://doi.org/10.3389/fpsyg.2017.01922
- Sorokowski, P., Kowal, M., Sternberg, R. J., Aavik, T., Akello, G., Alhabahba, M. M., Alm, C., Amjad, N., Anjum, A., Asao, K., Atama, C. S., Atamtürk Duyar, D., Ayebare, R., Conroy-Beam, D., Bendixen, M., Bensafia, A., Bizumic, B., Boussena, M., Buss, D. M., & Sorokowska, A. (2023). Modernization, collectivism, and gender equality predict love experiences in 45 countries. *Scientific Reports*, 13(1). https://doi.org/10.1038/s41598-022-26663-4
- Soyer, M., & Sünbül, Ö. (2023). The mediating roles of triangular love components in the relationship between romantic relationship beliefs and marriage attitudes. *Journal of Advanced Education Studies*, 5(1), 185–202. https://doi.org/10.48166/ejaes.1299809
- Sprecher, S., & Hatfield, E. (2017). The importance of love as a basis of marriage: Revisiting Kephart (1967). *Journal of Family Issues*, 38(3), 312–335. https://doi.org/10.1177/0192513X15576197
- Sprecher, S., & Metts, S. (1989). Development of the 'Romantic beliefs scale' and examination of the effects of gender and gender-role orientation. *Journal of Social and Personal Relationships*, 6(4), 387–411. https://doi.org/10.1177/0265407589064001
- Sprecher, S., & Toro-Morn, M. (2002). A study of men and women from different sides of earth to determine if men are from Mars and women are from Venus in their beliefs about love and romantic relationships. *Sex Roles*, 46(5–6), 131–147. https://doi.org/10.1023/A:1019780801500
- Sprecher, S., Aron, A., Hatfield, E., Cortese, A., Potapova, E., & Levitskaya, A. (1994). Love: American style, Russian style, and Japanese style. *Personal Relationships*, 1(4), 349–369. https://doi.org/10.1111/j.1475-6811.1994.tb00070.x
- Sternberg, R. J. (1986). A triangular theory of love. Psychological Review, 93(2), 119–135. https://doi. org/10.1037/0033-295X.93.2.119
- Tan, J. J. X., Kraus, M. W., Impett, E. A., & Keltner, D. (2020). Partner commitment in close relationships mitigates social class differences in subjective well-being. Social Psychological and Personality Science, 11(1), 16–25. https://doi.org/10.1177/1948550619837006
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection* and the descent of man (pp. 136–179). Routledge.
- United Nations (2019). World marriage data 2019 (POP/DB/Marr/Rev2019). Department of Economic and Social Affairs, Population Division. https://www.un.org/development/desa/pd/data/world-marriage-data
- United Nations (2023). Human development reports. In *Human Development Reports*. United Nations. https://hdr.undp.org/data-center/documentation-and-downloads
- Vera-Villarroel, P., Celis-Atenas, K., Lillo, S., Contreras, D., Díaz-Pardo, N., Torres, J., Vargas, S., Ovanedel, J. C., & Páez, D. (2015). Towards a model of psychological well- being. The role of socioeconomic status and satisfaction with income in Chile. *Universitas Psychologica*, 14(3), 1055–1066. https://doi.org/10.11144/Javeriana.upsy14-3.tmpw
- Vigouroux, S. L., & Scola, C. (2018). Differences in parental burnout: Influence of demographic factors and personality of parents and children. Frontiers in Psychology, 9, 356689. https://doi.org/10.3389/fpsyg.2018.00887



- Vyas, D., & Dillahunt, T. (2017). Everyday resilience: Supporting resilient strategies among low socioeconomic status communities. *Proceedings of the ACM on Human-Computer Interaction*, 1(CSCW), 1–21. https://doi.org/10.1145/3134740
- Walster, E. H., & Walster, G. W. (1978). A new look at love. Addison-Wesley.
- Ward, S. J., & King, L. A. (2019). Exploring the place of financial status in the good life: Income and meaning in life. The Journal of Positive Psychology, 14(3), 312–323. https://doi.org/10.1080/ 17439760.2017.1402075
- Watkins, C. D., Bovet, J., Fernandez, A. M., Leongómez, J. D., Żelaźniewicz, A., Corrêa Varella, M. A., & Wagstaff, D. (2022). Men say I love you before women do: Robust across several countries. Journal of Social and Personal Relationships, 39(7), 2134–2153. https://doi.org/10.1177/02654 075221075264
- Winking, J., Gurven, M., & Kaplan, H. (2011). The impact of parents and self-selection on child survival among the tsimane of Bolivia. *Current Anthropology*, 52(2), 277–284. https://doi.org/10.1086/659334
- Xu, Q., Yu, J., & Qiu, Z. (2015). The impact of children on divorce risk. *The Journal of Chinese Sociology*, 2(1), 1. https://doi.org/10.1186/s40711-015-0003-0

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

**Marta Kowal** Marta Kowal is a postdoctoral researcher at the University of Wrocław. Her research primarily focuses on mate attraction, with an emphasis on cross-cultural perspectives.

# **Authors and Affiliations**

```
Marta Kowal<sup>1</sup> · Adam Bode<sup>2</sup> · Karolina Koszałkowska<sup>3</sup> · S. Craig Roberts<sup>1,54</sup> ·
Biliana Gioneska 4 · David Frederick 5 · Anna Studzinska 6 ·
Dmitrii Dubrov<sup>7</sup> · Dmitry Grigoryev<sup>7</sup> · Toivo Aavik<sup>8</sup> · Pavol Prokop<sup>9</sup> ·
Caterina Grano<sup>10</sup> · Hakan Çetinkaya<sup>11</sup> · Derya Atamtürk Duyar<sup>12</sup> ·
Roberto Baiocco<sup>13</sup> · Carlota Batres<sup>14</sup> · Yakhlef Belkacem<sup>15</sup> · Merve Boğa<sup>16</sup> ·
Nana Burduli<sup>17</sup> · Ali R. Can<sup>18</sup> · Razieh Chegeni<sup>19</sup> · William J. Chopik<sup>20</sup> ·
Yahya Don<sup>21</sup> · Seda Dural<sup>22</sup> · Izzet Duyar<sup>12</sup> · Edgardo Etchezahar<sup>23</sup> ·
Feten Fekih-Romdhane<sup>24,55</sup> · Tomasz Frackowiak<sup>25</sup> · Felipe E. García<sup>26</sup> ·
Talia Gomez Yepes<sup>27</sup> · Farida Guemaz<sup>28</sup> · Brahim B. Hamdaoui<sup>29</sup> ·
Mehmet Koyuncu<sup>16</sup> · Miguel Landa-Blanco<sup>30</sup> · Samuel Lins<sup>31</sup> ·
Tiago Marot<sup>32</sup> · Marlon Mayorga-Lascano<sup>33</sup> · Moises Mebarak<sup>34</sup> ·
Mara Morelli<sup>35</sup> · Izuchukwu L. G. Ndukaihe<sup>36</sup> · Mohd Sofian Omar Fauzee<sup>37</sup> ·
Ma. Criselda Tengco Pacquing<sup>38</sup> · Miriam Parise<sup>39</sup> · Farid Pazhoohi<sup>40</sup> ·
Ekaterine Pirtskhalava<sup>41</sup> · Koen Ponnet<sup>42</sup> · Ulf-Dietrich Reips<sup>43</sup> ·
Marc Eric Santos Reyes<sup>38</sup> · Ayşegül Şahin<sup>12</sup> · Fatima Zahra Sahli<sup>44</sup> ·
Oksana Senyk<sup>45</sup> · Ognen Spasovski<sup>46</sup> · Singha Tulyakul<sup>47</sup> · Joaquín Ungaretti<sup>48</sup> ·
Mona Vintila 49 · Tatiana Volkodav 50 · Anna Wlodarczyk 51 · Gyesook Yoo 52 ·
Benjamin Gelbart<sup>53</sup> · Piotr Sorokowski<sup>25</sup>
```

<sup>&</sup>lt;sup>1</sup> IDN Being Human Lab - Institute of Psychology, University of Wrocław, Wrocław, Poland



Marta Kowal marta7kowal@gmail.com

- <sup>2</sup> School of Archaeology and Anthropology, Australian National University, Canberra, Australia
- <sup>3</sup> Faculty of Educational Sciences, Institute of Psychology, University of Lodz, Łódź, Poland
- <sup>4</sup> Macedonian Academy of Sciences and Arts, Skopje, North Macedonia
- <sup>5</sup> Crean College of Health and Behavioral Sciences, Chapman University, Orange, CA, USA
- <sup>6</sup> Humanities Department, Icam School of Engineering, Toulouse Campus, Toulouse, France
- <sup>7</sup> Center for Sociocultural Research, HSE University, Moskva, Moscow, Russia
- 8 Institute of Psychology, University of Tartu, Tartu, Estonia
- Department of Environmental Ecology, Comenius University, Bratislava, Slovakia
- Department of Psychology, Sapienza University of Rome, Rome, Italy
- Department of Psychology, Yaşar University, Izmir, Turkey
- Department of Anthropology, Istanbul University, Istanbul, Turkey
- Department of Developmental and Social Psychology, Sapienza University of Rome, Rome, Italy
- Department of Psychology, Franklin and Marshall College, Lancaster, PA, USA
- Ecole Normale Supérieure Assia DJEBAR de Constantine, Constantine, Algérie
- Department of Psychology, Ege University, İzmir, Turkey
- <sup>17</sup> Department of Psychology, University of Georgia, Tbilisi, Georgia
- Department of Anthropology, Hatay Mustafa Kemal University, Hatay, Turkey
- PROMENTA Research Center, Department of Psychology, University of Oslo, Oslo, Norway
- Department of Psychology, Michigan State University, East Lansing, MI, USA
- <sup>21</sup> School of Education, Universiti Utara Malaysia, Sintok, Kedah, Malaysia
- <sup>22</sup> Department of Psychology, Izmir University of Economics, İzmir, Turkey
- <sup>23</sup> Psicología Evolutiva y de la Educación, Universidad Autónoma de Madrid, Madrid, España
- <sup>24</sup> Department of Psychiatry Ibn Omrane, Razi Hospital, Manouba, Tunisia
- <sup>25</sup> Institute of Psychology, University of Wrocław, Wrocław, Poland
- <sup>26</sup> Departamento de Psiquiatría y Salud Mental, Universidad de Concepción, Concepción, Chile
- <sup>27</sup> Department of Education, Universidad Internacional de Valencia, Valencia, Spain
- Department of Psychology and Education Sciences and Speech Therapy, Mohamed Lamine Debaghine, Setif2 University, Setif, Algeria
- <sup>29</sup> Department of Sosiologie, Ibn Tofail University, Kenitra, Morocco
- 30 School of Psychological Sciences, National Autonomous University of Honduras, Tegucigalpa, Honduras
- 31 Department of Psychology, University of Porto, Porto, Portugal
- <sup>32</sup> Department of Administration, Getulio Vargas Foundation, Rio De Janeiro, Brazil
- <sup>33</sup> Escuela de Psicología, Pontificia Universidad Católica del Ecuador- Ambato, Ambato, Ecuador
- <sup>34</sup> Department of Psychology, Universidad del Norte, Puerto Colombia, Colombia
- <sup>35</sup> Department of Dynamic and Clinical Psychology and Health Studies, Sapienza University of Rome, Rome, Italy
- 36 Department of Psychology, Alex Ekwueme Federal University, Ndufu-alike, Nigeria



- <sup>37</sup> Faculty of Education and Liberal Arts, INTI International University, Nilai, Malaysia
- <sup>38</sup> Department of Psychology, University of Santo Tomas, Manila, Philippines
- <sup>39</sup> Department of Psychology, Università Cattolica del Sacro Cuore, Milano, Italy
- <sup>40</sup> School of Psychology, University of Plymouth, Plymouth, UK
- <sup>41</sup> Department of Psychology, Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia
- <sup>42</sup> Faculty of Social Sciences, imec-mict-Ghent University, Ghent, Belgium
- <sup>43</sup> Department of Psychology, University of Konstanz, Konstanz, Germany
- 44 Interdisciplinary Sports Science Laboratory, Institute of Sports Professions, Ibn Tofail University, Kenitra, Morocco
- WSB Merito University in Gdansk, Gdańsk, Poland
- <sup>46</sup> Department of Psychology, Ss. Cyril and Methodius University, Skopje, North Macedonia
- <sup>47</sup> Department of Health and Physical Education, Thaksin University, Songkhla, Thailand
- <sup>48</sup> School of Education, International University of Valencia, Valencia, Spain
- <sup>49</sup> Psychology Department, West University of Timisoara, Timisoara, Romania
- Department of Psychology and Pedagogy, Kuban State University, Krasnodar, Russia
- <sup>51</sup> Escuela de Psicología, Universidad Católica del Norte, Antofagasta, Chile
- <sup>52</sup> Department of Child & Family Studies, Kyung Hee University, Seoul, Republic of Korea
- <sup>53</sup> Department of Psychological and Brain Sciences, University of California, Santa Barbara, CA, USA
- <sup>54</sup> Division of Psychology, University of Stirling, Stirling, UK
- Faculty of Medicine of Tunis, Tunis El Manar University, Tunis, Tunisia

