



Love beyond east and west: How cultural models of selfhood predict frequency of being in love

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ABSTRACT

The purpose of this paper is to understand the implications of different dimensions of cultural models of selfhood for the frequency of being in love across cultures. This is achieved by analyzing large cross-cultural datasets encompassing 49 and 70 countries. In doing so, this paper extends the current discussion regarding the impact of cultural contexts and individual mindsets on the experience of being in love by correlating eight dimensions of independent and interdependent selves (Vignoles et al., 2016). Across eight different self-construal dimensions, we found that the strongest correlate of being in love was the self-expression (vs. harmony) dimension, where a higher frequency of feeling in love, measured by Likert scale from never to all the time, was associated with greater self-expression, both at the country and at the individual levels. Our results refine the discussion on the impact of Individualism/Collectivism on love experiences by demonstrating that it is specifically the self-expression aspect of individualistic/modernized countries that contributes to a higher frequency of being in love.

Love beyond east and west

How cultural models of selfhood predict frequency of being in love

This paper aims to understand the implications of different dimensions of cultural models of selfhood for the frequency of being in love across cultures. This is achieved by analyzing a large cross-cultural dataset encompassing 49 and 70 countries. In doing so, this paper extends the current discussion regarding the impact of cultural contexts and individual mindsets on the experience of being in love by correlating eight dimensions of independent and interdependent selves (Vignoles et al., 2016) with the reported frequency of being in love across a variety of cultures.

Being in love across cultures

For centuries, romantic love has been a focus of exploration across various forms of art, literature, and philosophy. However, systematic efforts by social scientists to understand romantic love only began in the mid-twentieth century (Karandashev, 2015). And a cross-cultural investigation of love in particular began in the late 1980s and continued into the 1990s, resulting in two prevalent views on how different cultures experience and conceptualize love (Beall & Sternberg, 1995). One of them posits that love is a universal emotional experience defined similarly across all cultures, whereas the second approach views love as universal emotional experience defined differently in varying cultural contexts. Yet another view is that individuals in every culture experience love similarly, but interpret this experience through different cultural frameworks. In this view although romantic love has important biological roots, its expression varies according to historical and cultural contexts (Feybesse, 2015).

Among the many theories of love, the triangular theory of love by Sternberg (1986) is one of the most influential. Using Sternberg's theory, Fisher (2006) examined three brain systems associated with love along with the hormonal characteristics (Fisher et al., 2005) associated with each aspect of love. Sternberg's three components of passion, intimacy, and commitment create different love types. Two types are important to highlight, viz., passionate love and companionate love (Sprecher & Regan, 1998). Campbell et al. (2016) refer to passionate love as Romantic-Passionate Love (RPL) or being “in love”, while companionate love could be described more generally as “feeling love”. In this article, we refer specifically to romantic-passionate love or being “in love”.

What it means to be in love may differ in specifics from person to person and from culture to culture. However, evidence suggests that love is a universal human emotion. Helen Fisher (2004) argued that romantic love has existed throughout hominid evolution, although it is challenging to empirically test such claims. Across history and geography, love has been associated with a range of human activities and values (Hatfield & Rapson, 2005). For example, Sumerian poems about love and desire can be found on tablets dating back 4100 years (Young & Alexander, 2012). Similarly, ancient Chinese civilization has left behind love poems that date from 2000 to 5000 years ago (Fletcher, et al., 2015).

A landmark study by Jankowiak and Fischer (1992) explored romantic love in 166 cultures and found that romantic love was present in 147 of those cultures (88.5 %). They examined indicators of love, such as young lovers discussing passionate love, recounting tales of love, singing love songs, and expressing the longings and anguish of infatuation. From these findings, Jankowiak

and Fischer (1992) concluded that romantic love is indeed affected by cultural variables, with individuals experiencing love more or less frequently depending on cultural attitudes – less so in societies that disapprove of romantic love (Jankowiak & Nelson, 2021).

However, the data on which cultural differences affect romantic love remains inconclusive. Doherty and colleagues (1994) reported that, within the U.S., Chinese Americans experience higher levels of passionate love compared to European Americans. Conversely, other studies found that European Americans report more intense experiences of passionate love than Chinese Americans (Gao, 2001). Additional studies found no gender or cultural differences in the experience of passionate love (for review, Feybesse & Hatfield, 2014). Further cross-cultural studies of romantic love provide robust evidence that love is influenced by cultural factors (Dion and Dion, 2005; Karandashev, 2015; Neto et al., 2000).

Frequency of feeling in love in individualistic vs. collectivistic cultures

One of the most defining aspects of a culture is whether it leans towards individualism or collectivism, shaping not only social norms but also deeply personal experiences, such as the expression and significance of love. Definitions of these distinctions continue to be debated. While western cultures are considered individualistic, the remaining countries are not so easily categorized. Furthermore, other aspects require further examination including the extent to which individualism-collectivism should be understood as an East-West or a North-South dimension (see Kitayama & Salvador, 2024; Van de Vliert et al., 2025; Vignoles, 2018; Voronov & Singer, 2002). Regarding love, several identifiable trends emerge. Individualistic societies often consider love to be an important basis for marriage, whereas collectivistic societies are less likely to prioritize love in this context. Research shows that love is deemed most important in Western and Westernized nations and least important in Eastern nations. In the West, marriage is viewed as a personal decision, while contemporary research on romantic love in China highlights marriage as an obligation to parents and family. Gao (2001) found that feelings of commitment are perceived to be stronger in Chinese societies than in Western ones. Wan and Yeung (2022), comparing relationship goals and self-presentation strategies by American and Hong Kong Chinese found that users of American dating websites maximize their relationship chances and prefer less committed relationships, while users of Chinese dating websites lean towards more committed relationships. Differences between individualistic and collectivistic cultures in the expression of love have also been noted. Eastern collectivistic cultures are often characterized as more subtle or restrained in their emotional expressions, in contrast to the more overt display of affection typical in Western individualistic culture (see Lim, 2016).

Despite having identified these cultural differences in, whether the frequency of feeling “in love” is higher in individualistic or collectivistic countries remains unanswered. A recent study by Sorokowski et al. (2023) found that collectivism, measured at the country level, is correlated with a more frequent experience of love (alongside factors such as modernization and average annual temperature) and that higher individualism predicts lower intensity of experienced love (Kowal et al., 2025). Conversely, other studies (Levine et al., 1995; De Munck & Korotayev, 2007) indicate that individuals in individualistic culture may experience love more frequently.

There are compelling arguments supporting why both types of cultures might experience love at higher frequencies compared to the other. Dion and Dion (2005) argue that collectivistic values promote a relational perspective on romantic relationships, while individualistic cultures, which focus more on self-interest, individual initiative, and independence, may not be as conducive for feeling “in love”. However, one could also content that the experience of romantic love is more prevalent in modern countries, individualistic countries, as feeling “in love” often flourishes when individuals are free to express their individuality, be their authentic selves, and pursue their own interest (be self-determined).

The present research: from individualism-collectivism to models of selfhood

Previous research has shown that the relation between individualism/collectivism and the frequency of being in love is complex. We believe that part of the reason why a heterogeneous pattern of result has emerged is the inconsistency of definitions and measurements of individualism/collectivism (Komisarof & Akaliyski, 2025; Lomas et al., 2023). The contradictory findings could be partially resolved when we examine cultural variations at a finer-grained level and relate them to the frequency of being in love. In this study, we examined exploratively the relation between eight dimensions of independent and interdependent self-construal (Krys et al., 2021; Vignoles et al., 2016; Yang, 2018) and the frequency of being in love using two independent large-scale cross-cultural studies of 49 and 70 countries. We focus on independent and interdependent self-construal, rather than other ingredients of culture such as values or personhood beliefs, because these constructs are fundamentally about how people experience themselves in relation to others (Markus, 1991).

Even though independence and interdependence have been frequently viewed as closely linked to cultural individualism and collectivism (e.g., Kitayama & Salvador, 2024), recent evidence suggests that the relationship between these constructs is more complex than previously assumed (Krys et al., 2022; Vignoles et al., 2016).

Individualism-collectivism has been most frequently regarded as a unipolar dimension of national culture, distinguishing Western cultures from non-Western cultures (Hofstede, 1991; Minkov et al., 2017). In contrast, independent vs. interdependent self-construals, conceptualized at the individual level, have been found to exhibit a multidimensional structure that does not closely map onto the cultural patterns observed for individualism-collectivism. For example, Western cultures score high on the self-construal dimension Self-direction (vs. Receptiveness to influence) and Self-expression (vs. Harmony), but very low on Self-interest (vs. Commitment to others) (Vignoles et al., 2016). Non-Western cultures, on the other hand, score low on some of the self-construals dimensions but higher than Western cultures on others. Thus, individualism-collectivism and self-construals should be viewed as conceptually related yet independent frameworks, the latter of which is explicitly designed to capture how individuals across cultures construct their

self-identity and interpersonal relationships. Adopting such a multidimensional approach to self-construal, our research moves beyond simplified cultural classifications and enables a more fine-grained analysis of which specific aspects of selfhood are related to higher frequency of feeling in love.

Dimensions of self-construal

Individuals may construe themselves in various ways depending on the context. In this study, we adopt the self-construal dimensions proposed by Vignoles et al. (2016), which aim to comprehensively represent the concepts of “independence” and “interdependence” that had been identified—but not distinguished from each other effectively—in previous research. Thus, the researchers identified initially seven and subsequently eight dimensions of self-construal on which both individuals and cultural groups/societies could be positioned (Krys et al., 2021; Yang, 2018).

Individuals in different countries may construe themselves as differing from or similar to others, reflecting a desire to be unique vs. preference for conformity. In addition, individuals within various cultures express themselves differently; in some countries, such as Germany or the United States, self-expression is encouraged (Kim & Sherman, 2007), whereas in others, such as Japan or China, maintaining harmony may take precedence, leading to more subdued expressions of opinion (Zhang et al., 2005). Furthermore, cultural differences also manifest in attitudes towards self-reliance vs. dependence on others. Individuals may frame themselves as either decontextualized – where one’s identity can be understood independently of their social background – or contextualized – where understanding requires knowledge of one’s social group (Owe et al., 2013).

The remaining four dimensions relate to how self-directed individuals are compared to their receptiveness to influence from others, the consistency of their behavior across different situations, their level of self-containment or independence vs. their connectedness—illustrated by the extent to which they emphasize with the emotions of close friends or family — and the balance between self-interest and commitment to the community, as shown by a willingness to sacrifice personal interests for the benefit of family.

In several studies (Vignoles et al., 2016; Vignoles, 2023), the latest using the current Happiness Meanders dataset (N = 12509 participants, 48 countries; 10 cultural regions), multilevel CFAs showed that self-direction (vs. receptiveness to influence) and self-expression (vs. harmony) have the most consistent and theoretically expected relations with indices of societal individualism-collectivism (Hofstede, 1991; Minkov et al., 2017; Krys et al., 2021). Other dimensions have shown inconsistent relationships across studies and alternative analyses; importantly self-interest (vs. commitment to others) has consistently shown a negative relationship with societal individualism (Vignoles, 2023).

Hence, in the current research, we were interested to explore the extent to which self-reported experiences of being in love would be more or less prevalent across societies with different models of selfhood assessed on these eight dimensions—encompassing, but going beyond, the focus on societal individualism-collectivism in previous studies—as well as among individuals with different personal self-construal scores on the same dimensions.

Methods

Participants

The data from this study were part of two larger projects, Happiness Meanders (HM) with 49-countries (N = 12,888 reduced to 12,828 after data quality exclusions) and Live Better (LB) with 70-countries (N = 16,643 reduced to 15,336 after exclusions).

HM data were collected between May 2017 and February 2019 while LB data were collected between late 2022 and early 2024. The last author has prepared all study materials, which were then applied by all other authors in their respective cultures. A template version of the questionnaire in English was prepared in Qualtrics and Google Forms for online administration and in a separate document for paper-and-pencil administration. Collaborators across cultures were then instructed to translate the questionnaire using the back-translation method (Brislin, 1970; Kowal, 2024).

Next, they administered the questionnaire to their samples of convenience. This involved university students, participants from research panels, snowball samples, convenience samples, and more, including 66 online samples, 7 paper-pencil samples, and 4 mixed samples for the LB study. In some of the studies, participants were incentivized with the equivalent of 2–5 USD, in others, participants were not incentivized monetarily. In all cases, informed consent was obtained from the participants. In some cultures, more than one sample was collected; so, for LB study, there were three samples from Algeria and two samples in Australia, Russia, South Africa, the United Kingdom, and the United States. In such cases, collaborators worked together on the adaptation of the questionnaire but collected their data independently. The samples were then aggregated within a culture and treated as a single sample.

The data underwent strict validation, all participants who failed more than 1 (out of 12) attention checks are excluded. Attention checks were in the form of instructions to explicitly select a particular answer, e.g. “Select the answer of ‘3’ for ‘a lot’ in this question”. If there were significant psychometric concerns, the country data were classified as low-quality and excluded from the overall dataset. Following this exclusion, responses to the selfhoods and emotions sections of the questionnaire were systematically examined for patterns indicative of random or careless responding, including phenomenon known as Christmas treeing as well as ‘Identify Duplicate Cases’ function in SPSS for three consecutive sections of the questionnaire including the cultural models of selfhood and frequency of feeling in love.

We provide an SPSS script for the calculation of selected variables. This code is available in the repository. The dataset for HM has been submitted to Scientific Data in its entirety. LB data will be publicly available after a 5-year embargo.

For comprehensive details about the samples and their demographics, refer to [Tables S1 and S3](#) in [Supplementary Online Materials](#)

(SOM). Complete list of items used to measure each self-construal dimension is also available (Table S5).

Materials and procedure

Although the questionnaires of both studies targeted topics related to well-being, they also included questions addressing cultural selfhood models, emotional expressivity, and the experience of being in love, making them suitable for this particular analysis.

The first study explored eight cultural selfhood dimensions: seven dimensions identified in Vignoles et al. (2016) study (for their list, please see Table 1) and an additional dimension: decontextualised (vs. contextualised self), which was added by Vignoles. In contrast, the second study concentrated on just two dimensions: self-interest (vs. commitment to others) and self-expression (vs. harmonious selfhoods).

The self-construal scale uses a long response scale (9 points) with extreme wordings on the end points, with the aim of allowing scope for people to differentiate among the items even if they have a strong tendency towards using one region of the scale. Label on the scales are 1 ‘doesn’t describe me at all’, 3 ‘describes me a little’, 5 ‘describes me moderately’, 7 ‘describes me very well’, and 9 ‘describes me exactly’.

The wording of the instructions also encourages people to differentiate among the items (hopefully reducing reference group effects to some extent) and to feel that it is okay and expected that they can disagree with some items (hopefully reducing acquiescent responding to some extent): “Probably some of the statements will not describe you well, whereas others will describe you better.”

The instruction for feeling in love variable is “We would like to ask you about the frequency with which you experience these emotional states (IN LOVE) ... please rate how often you feel a certain way”. The response is a 9-points scale labelled with ‘never’, ‘a couple of times a year’, ‘a couple of times a month’, ‘a couple of times a week’, ‘once a day’, ‘a couple of times a day’, ‘almost every single hour’, ‘a couple of times an hour’, ‘all the time’.

In both studies, participants evaluated the frequency with which they felt in love and experienced positive emotions. In the first study, the participants rated how often they felt the following emotions: enthusiasm, excitement, elation, euphoria, calmness, relaxation, peace, serenity, amusement, pride, hope, respect, gratitude, self-confidence, and authenticity. In the second study’s analyses, three positive emotions were covered apart from love: gratitude, excitement, and relaxation. Responders were asked to assess the frequency of experiencing each emotion separately. The response scale ranged from 1 (“never”) to 9 (“all the time”). These sections of the questionnaires were modelled on the Affect Valuation Index (Tsai et al., 2006).

Statistical analysis strategy

The analytical strategy involved conducting preliminary correlational analyses and verifying the findings with multi-level analyses. SPSS was used to perform Pearson’s correlation analyses at both the individual and country levels. For the country-level analysis, the dataset was aggregated by country to generate the necessary composite data.

To mitigate the potential confounding effects of conflating the experience of being in love with other positive emotions, scores of positive emotions were subtracted from the in love experience scores. This procedure was applied separately to each dataset, using the positive emotions outlined above. Consequently, two distinct variables were derived: the unadjusted in love experience reported by respondents and the ipsatised in love experience, adjusted by subtracting positive emotions. These variables were then analysed for their correlations with the selfhood dimensions.

Multilevel analysis

To account for the nested structure of our data, where individuals are clustered within countries, we utilized multilevel modelling techniques (Finch et al., 2019). We conducted Bayesian multilevel analyses using Mplus software, employing uninformative priors (Depaoli & Van de Schoot, 2017) and two Markov Chain Monte Carlo (MCMC) chains, each running for 10,000 iterations. The first 5000 iterations were discarded as burn-in and a thinning interval of 5 was applied. We used a random-intercept random-slope model. We centered the self-concept variable at the group mean for the individual level, using latent means instead of observed means (Asparouhov & Muthén, 2018; Enders & Tofighi, 2007). To investigate how self-concept predicts love, we conducted separate

Table 1
Eight cultural models of selfhood.

Cultural Models of Selfhood		Sample Items
1.	Difference vs. Similarity	You like being similar to other people
2.	Self-containment vs. Connection to others	Your happiness is independent from the happiness of your family
3.	Self-direction vs. Receptiveness to influence	You always make your own decisions about important matters, even if others might not approve of what you decide
4.	Self-reliance vs. Dependence on others	You tend to rely on yourself rather than seeking help from others
5.	Consistency vs. Variability	You see yourself the same way even in different social environments
6.	Self-expression vs. Harmony	You show your true feelings even if it disturbs the harmony in your family relationships
7.	Self-interest vs. Commitment to others	You usually give priority to your personal goals, before thinking about the goals of others
8.	Contextualized vs. Decontextualized self	If someone wants to understand who you are, they would need to know about the place where you live

multilevel models for each construal dimension, estimating effects at both the individual and country levels simultaneously. At the individual level, we included age, gender, and relationship status as covariates, with age being the only continuous covariate, which we group-mean centered. Gender and relationship status were dummy coded for analysis. For gender, individuals identifying as female were coded as 1, and all other gender identities as 0, making "other genders" the reference category. For relationship status, individuals currently in a relationship were coded as 1, and those not in a relationship as 0, with "not in a relationship" serving as the reference category. The effect of love or ipsatised love on the construal dimension in each model was specified as a random slope to capture cultural differences in these relationships more efficiently. At the country level, we included centered log-transformed GDP per capita as a covariate. Love or ipsatised love was regressed on these two variables in each model. The analysis code is available at <https://osf.io/xd6f2/>.

To evaluate the convergence and quality of the MCMC chains, we examined the potential scale reduction factor (PSRF) and inspected trace and autocorrelation plots (Brooks & Gelman, 1998). The maximum PSRF value across all parameters and models was 1.001, indicating excellent convergence. Trace plots demonstrated consistent chain mixing, and autocorrelation plots confirmed the independence of successive samples, ensuring that the MCMC samples accurately represented the posterior distribution.

We reported credible intervals for each parameter, representing the range of plausible values based on the posterior distribution. For significance testing, we reported one-tailed p-values for each estimate, calculated as the proportion of the posterior distribution below zero for positive estimates or above zero for negative estimates (Muthén & Muthén, 2017). The Bayesian approach allowed us to retain all available data, including participants with partial data, thus avoiding exclusions due to missing information.

Results

Self-construal dimension: 8 factors

Using the Happiness Meanders data set, we conducted a Multilevel CFAs (RMSEA =.030; CFI =.835; SRMRwithin =.040; SRMRbetween =.156) and found that same structure exists at the within-country and between-country levels, resulting in 8 substantive bipolar factors, controlling for age, gender, and student status (whether or not participant was a university student).

Measurement invariance of the self-construal scale

We conducted Confirmatory Factor Analysis (CFA) on the self-construal scale (SCS) and then a test of measurement invariance using Mplus (Asparouhov & Muthén, 2021). Raw scores for the 48 SCS items were used in the CFA to examine the theorized eight-dimensional model, with MLR estimation and using the TYPE=COMPLEX function to account for clustering of participants into 49 cultural groups. Aside from the expected factor loadings, all items were assigned a fixed loading of 1 on an acquiescent response style factor. This method-factor was allowed to correlate freely with the eight self-construal dimensions (Welkenhuysen-Gybels et al., 2003). Model fit is evaluated using the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and

Table 2
Correlation Results with L1 indicating individual level and L2 indicating country level analysis.

		Dependent Variable 1: The frequency in which emotional state in love is experienced Dependent Variable 2: Ipsatised love			
		Pearson's for DV 1	p-value	Pearson's for DV 2	p-value
Study 1					
Model 1	Difference vs. Similarity (L1)	.083**	< .001	.009	.301
	Difference vs. Similarity (L2)	.435**	.002	.180	.215
Model 2	Self-containment vs. Connectedness (L1)	-.076**	< .001	-.031**	< .001
	Self-containment vs. Connectedness (L2)	-.028	.85	-.031	.832
Model 3	Self-direction vs. Reception to Influence (L1)	.029**	.001	-.028**	.001
	Self-direction vs. Reception to Influence (L2)	.261†	.07	.221	.0127
Model 4	Self-reliance vs. Dependence (L1)	-.022*	.013	-.056**	< .001
	Self-reliance vs. Dependence (L2)	.302*	.035	.241**	.096
Model 5	Self-expression vs. Harmony (L1)	.088**	< .001	.034**	< .001
	Self-expression vs. Harmony (L2)	.324*	.023	.329*	.021
Model 6	Self-interest vs. Commitment (L1)	-.025**	.005	-.034**	< .001
	Self-interest vs. Commitment (L2)	.114	.436	-.047	.748
Model 7	Consistency vs. Variability (L1)	.106**	< .001	.003†	.076
	Consistency vs. Variability (L2)	-.028**	.005	.136	.351
Model 8	Decontextualised vs. Contextualised Self (L1)	.059**	< .001	.013	.131
	Decontextualised vs. Contextualised Self (L2)	.272†	.058	.149	.307
Study 2					
Model 1	Self-expression vs. Harmony (L1)	.046**	< .001	.017*	.042
	Self-expression vs. Harmony (L2)	.218†	.07	.213†	.076
Model 2	Self-interest vs. Commitment (L1)	-.039**	< .001	-.046**	< .001
	Self-interest vs. Commitment (L2)	-.108	.374	-.299**	.012

Note. † = $p < .10$, * = $p < .05$, ** = $p < .01$

Standardized Root Mean Squared Residual (SRMR). Values of CFI > .95 (or > .90) RMSEA < .06 (or < .08), and SRMR < .08 (or < .10) have been proposed as criteria for “good” or “acceptable” fit (Hu & Bentler, 1999; Kline, 2005).

Our initial model showed acceptable fit across most indices: $\chi^2(1043) = 13159.58$, CFI = .839, RMSEA = .030 (90 % CI: .030, .031), SRMR = .042. All items loaded significantly on their target factors (all $p < .001$) with standardized loadings in the expected direction ranging from .349 to .728. The modification indices suggested adding residual covariances between SCS_22_R and SCS_15 (see Table SM.1), which led to a slight improvement in model fit: $\chi^2(1042) = 12341.07$, CFI = .850, RMSEA = .029 (90 % CI: .029, .030), SRMR = .041. All items loaded significantly ($p < .001$) on their respective factors, with absolute standardized loadings from .348 to .768. Table SM.1 (available in [supplementary materials](#)) summarizes the standardized loadings from this adjusted model.

Then we tested the invariance of each self-construal dimension across the 49 cultural groups using the alignment method (Muthén & Asparouhov, 2014), which is recommended as an alternative to multigroup CFA for testing measurement invariance in many cultural groups (Byrne & van de Vijver, 2017). We ran separate alignment analyses for each of the eight self-construal dimensions, using ipsatized item scores to adjust for acquiescence. Table SM.1 summarizes the pattern of invariance (and evidence against invariance) of loadings and intercepts of all self-construal items across the 49 cultural groups. Between 2 % and 6 % of loadings and between 8 % and 19 % of intercepts showed evidence against invariance among the eight self-construal dimensions. Less than 25 % of loadings and intercepts showed significant evidence against invariance (Muthén & Asparouhov, 2014), which indicated acceptable invariance of the eight self-construal scores for comparison across the 49 cultural groups.

Correlation results

Table 2 presents the Pearson's correlation results for both Study 1 and Study 2, examining the relationships between in love experience, ipsatized in love experience, and dimensions of cultural models of selfhood. The models of selfhoods are coded such that higher scores indicate a more independent model, while lower scores indicate a more interdependent model. Therefore, positive effect sizes suggest an association between being in love and independent models of selfhoods, whereas negative effect sizes indicate an association with interdependent models (Tables 3–6)

At the country level (L2), in love experience demonstrated medium positive correlations with the dimensions of Difference (vs. Similarity) ($p = .002$), Self-expression (vs. Harmony) ($p = < .023$), and Self-reliance (vs. Dependence) ($p = .035$). Additionally, small positive correlations were observed with Decontextualised (vs. Contextualised Self) and Self-direction (vs. Reception to Influence), although these results were only marginally significant ($p = .058$ and $p = .070$). For ipsatized in love experience, a medium positive correlation emerged with Self-expression (vs. Harmony) ($p = .021$), while a low positive correlation was found with Self-reliance (vs. Dependence) ($p = 0.096$).

At the individual level (L1), in love experience showed low positive correlations with Consistency (vs. Variability) ($p = < .001$) and Self-expression (vs. Harmony) ($p = < .001$). Notably, the correlation between Self-expression (vs. Harmony) and both in love experience and ipsatized in love experience at the country level was also evident in the Study 2 data, although this finding was only marginally significant ($p = < .001$ and $p = .042$).

Table 3.1
Multilevel Models' Results with Dependent Variable: Being In Love.

			Unstandardized	95 % Credible Interval		Standardized	<i>p</i>	<i>R</i> ²
				Lower	Upper			
Study 1								
Model 1	Difference vs. Similarity (L1)		.118**	.066	.167	.056**	< .001	.047
	Difference vs. Similarity (L2)		.542*	.045	1.039	.333*	.0016	.367
Model 2	Self-containment vs. Connectedness (L1)		-.115**	-.170	-.060	-.054**	< .001	.047
	Self-containment vs. Connectedness (L2)		.024	-.385	.434	.017	.454	.252
Model 3	Self-direction vs. Reception to Influence (L1)		.048*	.000	.097	.048*	.026	.043
	Self-direction vs. Reception to Influence (L2)		.348†	-.157	.860	.348†	.085	.305
Model 4	Self-reliance vs. Dependence (L1)		-.083**	-.127	-.041	-.041**	< .001	.044
	Self-reliance vs. Dependence (L2)		.178	-.187	.546	.134	.162	.260
Model 5	Self-expression vs. Harmony (L1)		.123**	.080	.164	.061**	< .001	.046
	Self-expression vs. Harmony (L2)		.332†	-.064	.736	.231†	.051	.320
Model 6	Self-interest vs. Commitment (L1)		-.061**	-.101	-.022	-.027**	.0002	.042
	Self-interest vs. Commitment (L2)		.422	-.361	1.184	.173	.276	.032
Model 7	Consistency vs. Variability (L1)		.131**	.088	.171	.075**	< .001	.048
	Consistency vs. Variability (L2)		.347*	.021	.664	.287*	.019	.358
Model 8	Decontextualised vs. Contextualised Self (L1)		.064**	.014	.110	.031**	.006	.044
	Decontextualised vs. Contextualised Self (L2)		.247	-.147	.657	.170	.109	.297
Study 2								
Model 1	Self-expression vs. Harmony (L1)		.080*	.014	.147	.024*	.012	.231
	Self-expression vs. Harmony (L2)		-.120	-.375	.142	-.120	.191	.043
Model 2	Self-interest vs. Commitment (L1)		-.132**	-.207	-.056	-.035**	.001	.231
	Self-interest vs. Commitment (L2)		.213	-.696	1.129	.079	.318	.037

Table 3.2

Multilevel Models' Results with Dependent Variable: Ipsatised Love.

Unstandardized		95 % Credible Interval		Standardized	p	R2
		Lower	Upper			
Study 1						
Model 1	Difference vs. Similarity (L1)	-.006	-.047 .035	-.003	.391	.040
	Difference vs. Similarity (L2)	.208	-.216 .653	.174	.173	.104
Model 2	Self-containment vs. Connectedness (L1)	-.018	-.064 .028	-.009	.217	.041
	Self-containment vs. Connectedness (L2)	-.122	-.443 .198	-.120	.228	.090
Model 3	Self-direction vs. Reception to Influence (L1)	-.064**	-.107 -.021	-.032**	.002	.041
	Self-direction vs. Reception to Influence (L2)	.209	-.195 .624	.164	.155	.116
Model 4	Self-reliance vs. Dependence (L1)	-.122**	-.160 -.085	-.069**	< .001	.044
	Self-reliance vs. Dependence (L2)	.103	-.201 .417	.105	.157	.085
Model 5	Self-expression vs. Harmony (L1)	.014	-.024 .053	.008	.226	.040
	Self-expression vs. Harmony (L2)	.289*	-.029 .551	.289*	.040	.162
Model 6	Self-interest vs. Commitment (L1)	-.050*	-.099 .000	-.024*	.025	.042
	Self-interest vs. Commitment (L2)	-.195	-.794 .388	-.011	.255	.075
Model 7	Consistency vs. Variability (L1)	-.023†	-.059 .010	-.014†	.084	.040
	Consistency vs. Variability (L2)	.020	-.241 .282	.023	.440	.103
Model 8	Decontextualised vs. Contextualised Self (L1)	-.009	-.052 .031	-.005	.322	.040
	Decontextualised vs. Contextualised Self (L2)	.110	-.213 .439	.106	.253	.108
Study 2						
Model 1	Self-expression vs. Harmony (L1)	-.034†	-.081 .013	-.014†	.076	.224
	Self-expression vs. Harmony (L2)	-.070	-.700 .566	-.029	.411	.099
Model 2	Self-interest vs. Commitment (L1)	-.079**	-.134 -.022	-.029**	.004	.225
	Self-interest vs. Commitment (L2)	-.145	-.790 .505	-.072	.328	.095

Note. † $p < .10$, * $p < .05$, ** $p < .01$

Table 4.1

Summary of strength and direction of relations at the Individual Level (L1).

Dimensions	Correlation with feeling in-love	Correlation with ipsatised love	Multilevel Modelling feeling in-love	Multilevel Modelling ipsatised love
Difference (vs similarity)	+ **	n.s.	+ **	n.s.
Self-containment (vs. connectedness)	- **	- **	- **	n.s.
Self-direction (vs. reception to influence)	+ **	- **	+ *	- **
Self-reliance (vs. dependence)	- *	- **	- **	- **
Self-expression (vs. Harmony) Study 1	+ **	+ **	+ **	n.s.
Self-expression (vs. Harmony) Study 2	+ **	+ *	+ *	_marginal
Self-interest (vs. commitment) Study 1	- **	- **	- **	- *
Self-interest (vs. commitment) Study 2	- **	- **	- **	- **
Consistency (vs. variability)	+ **	+ _marginal	+ **	_marginal
Decontextualized (vs. contextualized self)	+ **	n.s.	+ **	n.s.

Note. + indicates positive relationship, - indicates negative relationship, n.s. indicates non-significant relationship, marginal = $p < .10$, * = $p < .05$, ** = $p < .01$

Table 4.2
Summary of strength and direction of relations at the Aggregate Level (L2).

Dimensions	Correlation with feeling in-love	Correlation with ipsatised love	Multi-level Modelling feeling in-love	Multi-level Modelling ipsatised love
Difference (vs similarity)	+ **	n.s.	+ *	n.s.
Self-containment (vs. connectedness)	n.s.	n.s.	n.s.	n.s.
Self-direction (vs. reception to influence)	+ marginal	n.s.	+ marginal	n.s.
Self-reliance (vs. dependence)	+ *	+ **	n.s.	n.s.
Self-expression (vs. Harmony) Study 1	+ *	+ *	+ marginal	+ *
Self-expression (vs. Harmony) Study 2	+ marginal	+ marginal	n.s.	n.s.
Self-interest (vs. commitment) Study 1	n.s.	n.s.	n.s.	n.s.
Self-interest (vs. commitment) Study 2	n.s.	- **	n.s.	n.s.
Consistency (vs. variability)	- **	n.s.	+ *	n.s.
Decontextualized (vs. contextualized self)	+ marginal	n.s.	n.s.	n.s.

Note. + indicates positive relationship, - indicates negative relationship, n.s. indicates non-significant relationship, marginal = $p < .10$, * = $p < .05$, ** = $p < .01$

Multi-level results

To confirm the findings, a series of multilevel models were conducted. Table 3 summarizes the results of 20 Bayesian multilevel models for our primary variables of interest – cultural models of selfhoods – for both Study 1 and Study 2. Descriptive statistics for the control variables included in the models (e.g., age, gender, relationship status) can be found in [Tables S2 and S4](#) of the [Supplementary Online Material](#) (SOM). The analysis controlled for age, gender (female or other), and relationship status (whether respondents referred to their romantic partners while completing the questionnaire about family in Study 1, and whether they were in a relationship in Study 2) on the individual level and for GDP per capita on the country level.

In Study 1, for the in-love experience, the multilevel model explained 36 % of the variance for Consistency (vs. Variability) and 37 % of the variance for Difference (vs. Similarity) at the country level ($R^2 = 0.358$ and $R^2 = 0.367$, respectively), with p-values indicating significant positive relationships. Additionally, the model explained 32 % of the variance for Self-expression (vs. Harmony) at the country level, with the p-value approaching significance ($p = 0.051$).

For the ipsatised in-love experience in study 1, the results revealed a significant effect only for the relationship with Self-expression (vs. Harmony) at the country level. The model accounted for 16 % of the variance, with the p-value significant ($p = .04$).

Results summary

[Table 4](#) presents summary of direction and strength of relations between each of the dimensions and the four conducted analysis (correlation with feeling in love, correlation with ipsatised love, multilevel modelling feeling in-love, and multilevel modelling ipsatised love) at the individual level and at the aggregate level.

At the individual level, difference (vs similarity) is positively related to feeling-in love but the relation is not found when positive feelings are subtracted from feeling in-love (ipsatised love). Self-containment (vs. connectedness) is negatively related to feeling in-love but the relation is not found in the multilevel analysis for ipsatised love. Self-direction (vs. reception to influence) is related positively for feeling in-love but negatively for ipsatised love. Self-reliance (vs. dependence) is consistently found to be related negatively with feeling in-love as well as ipsatised love. Self-expression (vs. harmony) is related positively for feeling in love but the relation is not found for multilevel ipsatised love. Self-interest (vs. commitment) is consistently negatively related to feeling in-love and ipsatised love. Both consistency (vs. variability) and decontextualized (vs. conceptualized self) are positively related to feeling in love and marginal / not-related to ipsatised love.

At the aggregate level, difference (vs. similarity) is positively related to feeling in love but not to ipsatised love. Self-containment (vs. connectedness) is not related to both variables. Self-direction (vs. reception to influence) is marginally related to feeling in love and not related to ipsatised love. Self-reliance (vs. dependence) are related to feeling in love but only at the correlation level and not at the multilevel analysis where other variables are controlled. Self-expression is correlated positively with feeling in love and ipsatised love in study 1 but not in the multilevel analysis of study 2. Self-interest (vs. commitment) is not related in all analysis, except for a significant negative correlation in study 2. Consistency (vs. variability) shows the opposite relation with feeling in love in the correlation

and the multilevel analysis. Decontextualized (vs. contextualized self) shows only a marginal positive relation at the raw correlation level.

In summary, looking at the individual vs. aggregate level, across analyses and studies, we found that the most robust predictor for higher frequency of feeling in love is the self-expression (vs. harmony) dimension.

Discussion

Across eight different self-construal dimensions, we found that the strongest correlate was self-expression (vs. harmony) dimension, where a higher frequency of feeling in love was associated with greater self-expression, both at the country and at the individual levels. This effect size remained stable when controlling for age, gender, and relationship status. Given that self-expression (vs. harmony) has been consistently associated with societal differences in individualism-collectivism, these findings align with previous research by Levine et al. (1995) and De Munck and Korotayev (2007). In addition, Sorokowski et al. (2023) noted that modernized and collectivist countries reported higher levels of love experiences; however, they found that the effect of collectivism became non-significant after controlling for participants' age. Our results refine the discussion on the impact of I/C on love experiences by demonstrating that it is specifically the self-expression aspect of individualistic/modernized countries that contribute to a higher frequency of being in love.

The self-construal dimensions were analyzed at the aggregate level, as cultural contexts, and at the individual level, as individual mindsets (see Minkov et al., 2024 for a comprehensive discussion on the differences between these analyses). At the country level, we identified three dimensions with medium positive correlations and two others with small positive correlations. All correlations were positive, indicating that cultural contexts where these forms of independence were more prevalent were associated with a higher frequency of feeling in love compared to contexts where the corresponding forms of interdependence were emphasized. In particular, cultures that encourage members to be different, express themselves freely, and maintain self-reliance reported a higher frequency of feeling in love. Similarly, although the effect was smaller, cultures promoting decontextualized — where individuals define themselves outside their social groups — and self-direction — also correlated with increased feelings of love.

At the individual level, we found that individuals who viewed themselves as more consistent — seeing themselves similarly across situations — and those who valued self-expression — preferring to openly show their thoughts and feelings reported a higher frequency of feeling in love. The experience of being in love often requires reciprocations from the object of affection, and expression one's feelings is essential for fostering such reciprocity (Koranyi & Rothermund, 2012). Likewise, consistency in self-presentation aligns with the concept of authenticity, which has been linked to positive relationship outcomes (Wickham, 2013), healthy relationship behaviors (Brunell et al., 2010), and romantic attachment (Gouveia et al., 2016) — all conducive to experiencing the feelings of love.

While all dimensions were available for analyses in study 1, only self-expression (vs. harmony) and self-interest (vs. commitment) were included in study 2. At the country level, we replicated the positive correlation between self-expression and higher frequencies of feeling in love. However, we did not find a correlation between self-interest and the frequency of feeling in love in either study. Furthermore, self-containment (vs. connectedness), a dimension only present in Study 1, also did not yield significant results regarding the frequency of feeling in love. Why might self-interest and self-containment be irrelevant? For self-interest, it may be that prioritizing personal goals over others — or vice versa — is not conducive to experiencing love, which fundamentally relies on reciprocity the relationship with self-containment (vs. connectedness) is more complex; feeling connected to family might reduce the need for belonging that drives the search for romantic partners, thereby diminishing the frequency of feeling in love. Conversely, being self-contained may also lessen the need for belonging, making individuals more comfortable alone and less likely to seek love.

Feeling in love encompasses various dimensions but it may also be an indicator of a more general positive emotionality. In our studies, we asked participants not only about the frequency of feeling in love but also about the frequency of other positive emotions. To isolate the specific effect of feeling in love, we created an ipsatised love variable by subtracting the frequency of other positive emotions from the frequency of feeling in love. The results of the ipsatised love variable replicated our findings regarding self-expression and self-reliance at the country level, showing that the frequency of feeling in love — beyond other positive emotions — correlates with higher self-expression and self-reliant cultural contexts. Results for the ipsatised in love experience and self-expression were also consistent in Study 2 data.

Finally, we conducted a series of 20 Bayesian multilevel models, controlling for age, gender, and relationship status to confirm our findings. At the country level, we confirmed that higher consistency, preference for difference, and free self-expression are associated with a greater frequency of feeling in love. Specifically, the relationship holds for self-expression, beyond positive emotions.

Our study is based on cross-sectional data, so as such the reverse direction of effect is possible. A recent study by Williams et al., 2024, however, investigating over a four-week period, found that increases in expressing love led to increased feelings of being loved over time, but increases in felt love did not lead to increases in expressing love, providing evidence that it is the self-expression of love that led to feeling in love, instead of the other way around. Also, in our study, self-expression is asked in a general manner across domains, instead of specifically expressing feelings to the romantic partner. As such it is more likely that the general tendency to express would lead to a specific condition, instead of the specific leading to a more general tendency.

One possible mechanism linking self-expression (vs. harmony) and higher frequency of feeling in love could be self-disclosure. Using the lens of interpersonal dynamics, reciprocal self-disclosure is an important aspect in the formation and maintenance of romantic relationships (Clark & Reis, 1988). Individuals who dare to express themselves even when doing so disrupts harmony, are also likely to be individuals who have lower thresholds of self-disclosure and are thus likely to be more successful in forming and maintaining romantic relationships. Hence, they experience higher frequencies of feeling in love.

According to attachment and emotion regulation theory (Mikulincer & Shaver, 2019), avoidant people are more likely to cope with threatening events by relying on cognitive distancing and emotional disengagement, including heightened thought suppression. At the

individual level, low self-expression could be conceived as a symptom of avoidant-type attachment, which is predictive of lower frequency of feeling in love. Furthermore, Fletcher et al. (2015) observed a striking similarity between the behavioural manifestations of parent-infant love and romantic love, suggesting that evolution may have borrowed these ancient bonding mechanisms, originally evolved in mammals to bond mothers to their offspring, and applied them to men and women in the context of romantic pair-bonding. As such there might be a shared component between individuals high in self-expression and frequency of feeling in love, namely that both processes are related to a secure-type attachment style.

Alternatively, in large-scale study such as this one, confounds are unavoidable. If romantic-passionate love occurs most exclusively at the beginning of a relationship, a higher frequency of feeling in love might also mean having more frequent relationships. Places like the United States, which scores high on self-expression, also scores high on divorce and serial marriages. As such, it is not self-expression per se which correlates with higher frequency of feeling in love, rather, countries high in self-expression are also countries that allow for dynamic relationships where it is easier to start and end romantic relationships, thus leading to more early-phase relationship where feeling in love is normally experienced. Despite this weakness, the findings in this article opens new pathway to consider more nuanced examination on the cross-cultural occurrence of romantic-passionate love as illustrated from the various hypotheses presented above.

Another limitation of the study is in the aggregation of individual values to the national level. Our data are not nationally representative data unlike major datasets such as the World Value Survey Inglehart et al. (2000) and previous research has shown that there are substantial within-country variations in cultural values (Oyserman et al., 2002). On the other hand, Akaliyski et al. (2021) argued that nations remain meaningful unit of analysis due “the nation’s cultural gravity center”. Nevertheless, this issue remains as a limitation of our study. We conducted multi-level analysis where our aggregated analysis is there to complement our individual-level analysis.

Lastly, the data collection was not specifically designed to address questions such as whether higher frequency of feeling in love translates into greater relationship quality or longevity. It remains unanswered whether individuals from self-expressive cultures are more likely to form enduring romantic bonds, or are they merely more prone to transient experiences of love. Nor does this study provide information on relationship outcomes across cultures. Also, we interpreted feeling in love to refer to romantic-passionate love. However, further study will benefit from a differentiation between types of love experiences (e.g. familial, platonic, or transcendent).

Our research is one of the few that delves deeper into the dimensions underlying individualism/collectivism by looking at multiple dimensions of self-construal that provide a finer-grained analysis of cultural differences, while broadening the scope beyond East-West comparisons. By including a substantial number of countries (49 and 70) and employing multi-level analyses, we honor the complexity of these dimensions as both cultural contexts and individual differences. We encourage the continued exploration of cross-cultural questions using large-scale datasets.

In conclusion, our quest aimed to understand what influences the frequency of being in love across cultures. Our results indicate that individualistic cultural contexts and independent self-construal are related to a higher frequency of feeling in love. In particular, self-expression emerged as an important dimension. Love is a universal emotion that almost everyone, regardless of culture, wishes to experience (Kowal, Bode, et al., 2024). Yet, due to cultural constraint or individual differences, we may sometimes hold back from expressing our emotions. If we could express our thoughts and feelings more openly, the frequency of feeling in love might increase universally.

CRediT authorship contribution statement

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.ijintrel.2025.102233](https://doi.org/10.1016/j.ijintrel.2025.102233).

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