

The Unidimensional Relationship Closeness Scale (URCS): Reliability and Validity Evidence for a New Measure of Relationship Closeness

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A fundamental dimension along which all social and personal relationships vary is closeness. The Unidimensional Relationship Closeness Scale (URCS) is a 12-item self-report scale measuring the closeness of social and personal relationships. The reliability and validity of the URCS were assessed with college dating couples ($N = 192$), female friends and strangers ($N = 330$), friends ($N = 170$), and family members ($N = 155$). The results show that the scale is unidimensional, with high reliability across relationship types ($M \alpha = .96$). Evidence consistent with validity included substantial within-couple agreement for the romantic couples (intraclass correlation = .41), substantial friend–stranger discrimination for the female friends ($\eta^2 = .82$), and measurement invariance across relationship types. Evidence of convergent and divergent validity was obtained for inclusion of other in the self and relational satisfaction, respectively.

Keywords: interpersonal relationships, closeness, intimacy, measurement

Humans are social, and perhaps nothing is more important to people, both as individuals and as a species, than their close relationships. Not all relationships, however, are equally close. The concept of interpersonal closeness is critical to the theory and research on social and personal relationships because variations in closeness impact a wide range of interpersonal and relational phenomena, from self-disclosure to deception detection (Altman & Taylor, 1973; Levine & McCornack, 1992). One might even go so far as to label closeness as the flagship variable of interpersonal relationship research.

Because the idea of relationship closeness is critical to the study of social and personal relationships, it is important to measure it well. Although various measures of closeness exist (e.g., Aron, Aron, & Smollan, 1992; Berscheid, Snyder, & Omoto, 1989; Maxwell, 1985), a new, highly reliable, construct valid, multi-item, and unidimensional measure would be valuable. This article explains why a new measure is desirable and provides a new measure of relationship closeness that meets these needs.

Two aspects regarding the development of the new measure are worth previewing. First, the items generated for this new measure were directly inspired by the ideas and arguments of previous research on the assessment of closeness. The aim is a new measure, not the explication of a new construct. The new measure is intended to capture the core essence of interpersonal closeness as conceived by Berscheid et al. (1989), Aron et al. (1992), and other

scholars. Second, this new scale is designed to represent methodological improvement over previous measures, especially with regard to unidimensionality and scale reliability. It is this second aspect of the new measure, its improved psychometric properties, which provides immediate added value for researchers of social and personal relationships.

Relationship Closeness

Although relationship closeness is nearly synonymous with intimacy in close, loving relationships, closeness has a larger conceptual bandwidth and range of application than does intimacy (Parks & Floyd, 1996). In close, committed romantic relationships, for example, closeness and intimacy are likely to covary nearly perfectly and are conceptual twins (Sternberg, 1988). However, there are a number of nonintimate social relationships that vary meaningfully in closeness. For example, complete strangers, mere acquaintances, friendly coworkers, and casual friends may meaningfully differ along the closeness continuum, but none of these relationship types would be considered intimate. The new measure reported here is applicable across a wide spectrum of relationship types ranging from strangers to intimates.

Relationship closeness is often thought of as involving the strength of the emotional bond between people, the degree of idiosyncratic knowledge of the other person, or both. The concept of interdependence encompasses both of these ideas. In line with Kelley et al. (1983), the level of relational closeness is formally defined here as *the degree of affective, cognitive, and behavioral mutual dependence between two people, including the frequency of their impact on one another and the strength of impact per occurrence*. Interdependence manifests itself through a variety of behavioral, cognitive, and emotional attributes. Behaving close and feeling close can usefully be viewed as distinct indicators of a common closeness dimension (Aron et al., 1992). Moreover, that closeness indicates interdependence occurring between two people suggests that closeness transcends relationship types. For example,

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persons in same-sex friendships, romantic relationships, and parent-child relationships experience closeness (Afifi & Schrodt, 2003; Aron, Aron, Tudor, & Nelson, 1991; Berscheid et al., 1989). Although these different types of relationships may experience and enact closeness differently, relationships vary along a closeness dimension both within and across different relationship types, and regardless of relationship type, the more interdependent the people, the closer the relationship.

Closeness is conceptualized here as a continuous concept, as opposed to an all-or-nothing phenomenon. It occurs in gradations (Aron & Fraley, 1999). Relationship closeness is seen as varying along a single continuum ranging from completely independent strangers to maximally interdependent individuals whose thoughts, affect, and behaviors are fully intertwined and fully meshed (cf. Kelley et al., 1983).

The current definition of closeness also has the advantage of accommodating the view that closeness is multiply and flexibly determined, while maintaining the idea of variance along a single dimension. The constellation of variables that constitute closeness for one relationship does not always define closeness for another relationship, and several different variables may instantiate closeness. Researchers have attempted to link some of the main variables to the particular types of relationships for which those variables indicate closeness (e.g., Floyd & Parks, 1995; Wood & Inman, 1993; Yaughn & Nowicki, 1999). Yet, Maxwell (1985) wrote that mutual dependence might be the single most useful indicator of closeness because especially in long-standing relationships, the upper limits of constructs such as liking, attraction, and commitment may have already been reached. On the other end of the closeness spectrum, even relatively casual relationships can vary in the degree of interdependence, even though passion, commitment, and intimacy (cf. Sternberg, 1988) may not be relevant.

Expanding further on the idea of closeness as mutual dependence, Aron and colleagues (e.g., Aron et al., 1992; Aron et al., 1991; Aron & Fraley, 1999) view closeness as including the other in the self. According to this perspective, "in a close relationship the individual acts as if some or all aspects of the partner are partially the individual's own" (Aron et al., 1992, p. 598). This suggests a blurring of the boundaries between those aspects that characterize each individual (Aron et al., 1991). It is, in part, the degree of self-other overlap that constitutes the level of interdependence that we take to indicate relationship closeness. A valid measure of the closeness dimension, therefore, should encompass the idea of including the other in the self. Nevertheless, there is more to the psychological and behavioral interdependence that defines relational closeness than self-other overlap.

To summarize, relationship closeness is conceptualized as the degree of interdependence occurring between relationship partners. This interdependence can be experienced cognitively, emotionally, and behaviorally, and the degree of interdependence can vary temporally within relationships as well as across relationships. Conceptual considerations such as those already discussed have resulted in the emergence of a number of measures used to assess relationship closeness. Two of the more prominent measures are discussed below. Special attention is given to how these tools inform the new measure being forwarded by this article.

Berscheid et al.'s (1989) Relationship Closeness Inventory

The Relationship Closeness Inventory (RCI), developed by Berscheid et al. (1989), draws from the conceptual treatment of closeness as interdependence by Kelley et al. (1983). The RCI consists of three subscales designed to assess three of four properties proposed by Kelley et al. to indicate a close relationship: the *frequency* with which one person impacts another, the *diverse* kinds of activities through which one person can impact the other, and the *strength* of the impact one has on the other. Kelley et al. also proposed a fourth indicator, the *duration* of impact of one on the other. However, this idea did not appear among the subscales of the RCI.

Each of the three subscales comprises a full self-report questionnaire that individuals complete while keeping a relational other in mind. Although it is a self-report measure, the RCI's indicators were intended as much as possible to assess relational closeness as an objective observer might. Thus, the scale contains a behavior checklist, and the focus is on common activities.

Some potential limitations of the RCI suggest the need for a new measure. First, the items appearing on the RCI now seem dated with respect to modern forms of interaction and activities. For example, the diversity subscale consists of a lengthy list of activities taken to represent the various ways close individuals impact one another. Respondents then sum the number of different activities in which they engaged with their relational other. Items such as "went to a movie," "played cards/board game," and "watched TV" (Berscheid et al., 1989) are included. However, when the scale was first published, e-mail was in its infancy, mobile telephones were the province of the wealthy (to say nothing of text messaging), and social networking Internet applications such as Facebook.com and MySpace.com had yet to be invented. Current researchers will be quick to point out the prevalence of these modes of impacting one another in the current landscape of social relationships. Items not tied to specific technological advances would be desirable to avoid the measure becoming dated as specific technologies come in and out of use.

Second, the RCI measures relationship closeness from an outsider's point of view. Berscheid et al. (1989) acknowledged that the conceptual scope of their measure may be somewhat narrow, largely because the RCI's items focus primarily on behavioral indicators of closeness rather than affective feelings of closeness between individuals. It will be recalled that other researchers have argued (e.g., Aron et al., 1992; Aron et al., 1991) that relationship closeness also manifests itself as an affective or emotional bond. The inclusion of items capturing affective and emotional interdependence might therefore be desirable as a matter of content validity.

Finally, the RCI is multidimensional, and a unidimensional measure is sought here because closeness can be thought of as varying globally along a single continuum. Although distinctions between aspects of closeness may be theoretically important for some lines of research, much research requires or desires only a single score on closeness. The need to capture the aspect of feeling close coupled with the desirability for a unidimensional measure, in part, drove the current development of an alternate measure.

Aron, Aron, and Smollan's (1992) Inclusion of Other in the Self Scale

Aron et al.'s (1992) Inclusion of Other in the Self Scale (IOS) was designed to address three limitations in Berscheid et al.'s (1989) RCI. First, Aron et al. noted that the RCI aligns heavily with the typical North American college student's situation. Thus, doubts were raised as to the RCI's generalizability, especially with respect to non-North American cultures. Second, in Aron et al.'s view, the time necessary to complete the RCI (10–15 min) was not optimal, especially if one is attempting to measure other variables besides closeness. Third, Aron et al. take issue with the RCI's reliance on Kelley et al.'s (1983) theoretical approach to relational closeness. According to Aron et al., this view fails to capture much of the cognitive and affective qualities typically associated with closeness. The IOS overcomes the three concerns with the RCI mentioned in this article.

Aron et al.'s (1991) conceptualization of closeness as including the other in the self provides the theoretical basis for the IOS. The IOS manifests as a single item. Respondents are asked to circle the one of seven Venn-like diagrams that best represents his or her relationship with his or her partner. The seven pairs of circles are arranged progressively from zero overlap (1, *low degree of closeness*) to almost completely overlapped (7, *highly close*). The most obvious limitation with such an arrangement, which the scale's authors acknowledge, is that reliability by way of internal consistency cannot be determined. Aron et al. (1992) do present some evidence for test–retest reliability. IOS scores generated 2 weeks apart correlated from .83 to .86, based on the relationship of the referent to the respondent (e.g., family, friend, romantic partner). However, the well-known issue with test–retest reliability is the confounding of (un)reliability with true score change. Further, reliability is, in part, a function of test length, and single items will always be less reliable than sound multiple-item scales. Lower reliability, in turn, leads to attenuated effect sizes and diminished predictive utility, lower statistical power, and larger error terms. Finally, reliance on a single item limits the conceptual bandwidth of the construct. An exclusive focus on overlap in self-concepts fails to capture the full range of psychological and behavioral interdependence reflected in the current conceptual definition of closeness. The Unidimensional Relationship Closeness Scale (URCS) is presented here as an option for those preferring multiple-item, yet unidimensional, measurement.

The Unidimensional Relationship Closeness Scale (URCS)

The RCI and the IOS represent valuable developments in the enterprise of closeness conceptualization and measurement. The current research builds upon these measures to advance the measurement of an integral concept. Thus, a new scale for assessing the relationship closeness between two persons is presented; it maximizes the time-tested strengths of prior measures and remains consistent with current conceptualizations of closeness, but overcomes the noted psychometric limitations of each previous measure.

The new measure is a 12-item, self-report instrument. Each item is accompanied by a seven-step, Likert-type response set. The items are averaged to create a single overall closeness score. Low

values are bounded by 1.0 and reflect a total lack of meaningful relationship closeness, and high numbers are bounded by 7.0 and indicate maximally high relationship closeness. The IOS item (Aron et al., 1992) can be included along with 12 URCS items, although its inclusion is optional. When the IOS is averaged into a single scale with the URCS items, the result is unidimensional, and the URCS items perform well in conjunction with the IOS item.

Rather than start with a large pool of items, items were selected or created to capture specific aspects of relationship closeness critical to the idea of psychological and behavioral interdependence. Some URCS items were taken from or inspired by sources such as Maxwell (1985; e.g., "My relationship with my partner is close," "When we are apart I miss my partner a great deal") and Walker and Thompson (1983; e.g., "I consider my partner when making important life decisions"). Items from these sources were chosen because they appeared highly face valid when considering the conceptual definition of closeness adopted in the present article. Other items were created by the current authors to create a measure that more robustly captures the dual aspects of behaving close and feeling close (e.g., "I think about my partner a lot"). The 12 URCS items are presented in Table 1.

The URCS is intended to represent an improvement over both the RCI and the IOS. In response to Aron et al.'s (1992) criticism that the RCI places undue time demands on its users, this new collection of items cohere under a single dimension with only 12 items. These items can be answered in a fraction of the time it takes to complete the RCI. In order to capture the conceptual richness called for by Aron and colleagues, the Venn diagrams of the IOS can be included as one of the items in a hybrid instrument. Evidence that the IOS item is unidimensional with the URCS items

Table 1
The Unidimensional Relationship Closeness Scale (URCS)

Instructions: The following questions refer to your relationship with your romantic partner [friend, family member, etc.]. Please think about your relationship with your romantic partner [friend, family member, etc.] when responding to the following questions. Please respond to the following statements using this scale:

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

1. My relationship with my _____ is close.
2. When we are apart, I miss my _____ a great deal.
3. My _____ and I disclose important personal things to each other.
4. My _____ and I have a strong connection.
5. My _____ and I want to spend time together.
6. I'm sure of my relationship with my _____.^a
7. My _____ is a priority in my life.
8. My _____ and I do a lot of things together.
9. When I have free time I choose to spend it alone with my _____.
10. I think about my _____ a lot.
11. My relationship with my _____ is important in my life.
12. I consider my _____ when making important decisions.

^a Item 6 can be omitted due to questionable discriminant validity with relationship satisfaction and relationship certainty.

provides strong support for convergent validity. Moreover, using multiple scale items both resolves the inability to calculate an internal consistency reliability estimate that currently hampers the IOS and produces substantially larger correlations with related constructs due to increased reliability. Thus, the use of the URCS on its own or as a supplement to the IOS offers researchers substantially improved statistical power and substantially larger observed effect sizes that more closely approximate population values. As shown in the sections that follow, this particular package of new and existing items forms a psychometrically sound, single dimension that can discriminate among various levels of closeness for a variety of relationship types and that is highly reliable across applications to different relationship types.

Method

Participants and Procedures

The factor structure, validity, and reliability of the URCS were assessed with four data sets providing replications with four different types of relationships (romantic couples, friends, family, and strangers) and allowing for evidence of different types of validity including structure/factorial validity, convergent validity, and divergent validity. Together, this evidence makes a compelling case for construct validity.

The first data set included 192 students (96 couples) from a large Midwestern university who were (mostly) currently involved in a romantic relationship. Participants were asked to show up for the research with a current romantic partner. Upon arrival, the romantic partners were separated, and they filled out a questionnaire independently. Included among a variety of trait measures were the URCS and a measure of relationship satisfaction developed by Hendrick (1988). All but one of the pairs were heterosexual, thus the sample contained two more women than men. Participants were predominantly Caucasian. The average participant was 20.23 years old ($SD = 1.93$), and the average relationship duration was 2.2 years ($SD = 2.89$, 66% at 1 year or longer). When asked to qualitatively describe their relationship with their partner, 7% responded with nonromantic friend, 8% responded with friends with benefits, 27% responded with casually dating, 54% responded with seriously dating, and 3% indicated they were engaged. None of the couples were married, 77% reported that their relationship was exclusive, and 8% were cohabitating at the time the data were collected.

The second data set included 330 women from the same university (M age = 19.38 years, $SD = 1.43$). Participants were required to come to the lab with a same sex friend, and two pairs of friends were scheduled for each session. The sample was 70.9% Caucasian, 14.8% African American, 3.1% Asian, 1.8% Hispanic, 1.3% Native American, and 8.1% other. Of the friends, 10.6% identified as casual friends, 53.5% identified as good friends, and 35.9% indicated that they were best friends. The duration of the friendships ranged from 1 month to 21 years ($M = 3.5$ years, $SD = 4.2$, with 72.7% being friends for at least 1 year).

Two sets of friends were scheduled for each time slot. Upon their arrival at the lab, participants were randomly assigned to complete a bogus social perception task with either their friend or a stranger. All participants completed the URCS with their exper-

imental partner (i.e., either a friend or a stranger) as the referent person.

The third data set included 155 students from a different university located on a Pacific island. The sample was 60% female (M age = 21.9, $SD = 4.3$; 40% male), 57% Caucasian, 21% Asian, and 22% other. Unlike the first two data sets, these data were collected via an Internet-based survey. Participants were asked to complete the URCS with a specific self-selected family member in mind. Chosen family members included mother (39%), sister (24%), brother (18%), father (16%), and spouse (3%).

The final data set was also collected via the Internet at the same Pacific island university. The participants ($N = 170$; 60% female and 40% male, 44% Caucasian, 31% Asian, 12% mixed race, M age = 22.4 years, $SD = 4.9$) were asked to complete the scale with a specific self-selected friend in mind. The chosen friends included best friends (65%), close friends (29%), and casual friends (3%).

Thus, the URCS was completed by several independent samples representing different types of relationships. The first sample tested the new measure's ability to tap the closeness between nonmarried romantic partners. The second sample facilitated a test of the URCS within the context of friends and strangers. The third and fourth data collections compared friends and family. The Hendrick (1988)

Analysis Strategy

Because unidimensionality is a prerequisite for meaningful estimates of reliability, it was important to first establish the factor structure of the scale. Initially, interitem and item-total relationships were screened for linearity and a flat-positive matrix. Next, planned confirmatory factor analyses testing a hypothesized unidimensional model using LISREL 8.80 assessed model fit. Confirmatory factor analysis (CFA) was conducted because a measurement model was hypothesized a priori and because confirmatory procedures offer a more rigorous test than exploratory analyses. Exploratory factor analyses (EFA) using principal axis and maximum likelihood extraction and both orthogonal and oblique rotations were used to check for viable multidimensional solutions. As a test of convergent validity, a second set of CFAs were used to show that when the IOS was included in the model, the data continued to fit a unidimensional measurement model. As a test of divergent validity, a third set of CFAs were used to show that the closeness items and the relationship satisfaction items loaded on separate factors. No error terms were correlated to enhance model fit in any of the analyses. In the couples' data (Study 1), CFAs were run with both individual and couple level data to verify that the conclusions were robust for both independent and nonindependent data. In the friends-stranger data (Study 2), CFAs were run with both the full sample and the friends subsample to ensure model fit with restricted variance. In the third and fourth data collections, LISREL was used to replicate the factor structure and to show measurement invariance across friends and family applications. SPSS (Version 19.0) was used to assess scale reliability and to verify that all items contributed positively to the instrument's reliability. An intraclass correlation was calculated in the sample of romantic couples to show within-couple agreement, and the URCS was correlated with relationship satisfaction. For the Study 2 friends, a comparison of the means was made between the closeness for friends and the closeness for

nonfriends. In all four samples, means were examined by qualitatively reported relationship type to demonstrate order among types in the scale mean.

Results

In the Study 1 romantic couples' data, the CFA was clearly consistent with a unidimensional fit for the URCS. CFA was also done with individual level data, and the findings were also consistent with the fit of a unidimensional model. Eigenvalues resulting from principal axis EFA are shown in Table 2. LISREL model fit statistics are presented in Table 3. EFAs examining potential two, three, and four-factor solutions failed to yield viable multidimensional models due to problematic cross-loadings and inter-factor correlations greater than $r = .70$.

The mean on the URCS was 5.59 ($Mdn = 5.76$, $SD = 0.93$, range = 3.00–7.00, with a negative skew). The mean scores differed by relationship type (see Table 3), with the URCS producing an effect size of $\eta^2 = .29$, compared with $\eta^2 = .17$ and $\eta^2 = .05$ for the IOS and for relational satisfaction, respectively. Partners' closeness scores were substantially related to each other, $F(95, 92) = 2.41$, $p < .001$, intraclass correlation = .41. The URCS was correlated with relational satisfaction at $r(186) = .73$.

To further assess convergent validity, CFA was used to test a unidimensional model containing the 12 URCS items and the IOS item. The data were consistent with unidimensionality (see Table 3). The IOS correlation with the 12 URCS items was $r(186) = .58$. The correlation between the IOS and relational satisfaction was $r(186) = .48$, which dropped to a within sampling error of 0 when controlling for closeness (scored without the IOS), partial $r(186) = .09$, *ns*. Together, with the factor analyses showing that the IOS is unidimensional with the other URCS items, strong evidence of convergent validity was obtained.

A second set of CFAs tested divergent validity by assessing measurement models containing both URCS and relational satisfaction items. A two-factor solution with all URCS items on one factor and the satisfaction items on a second factor provided a better fit to the data than a unidimensional solution. Modification indices and factor loadings suggested that URCS Item 7 was cross-loading, and removing the item further improved the fit of the two-factor model over the unidimensional model. Thus, although they are highly correlated, items assessing relationship closeness and relationship satisfaction assess different constructs.

For the friends–stranger experimental data (Study 2), CFA was also consistent with a unidimensional fit. The model was also tested and confirmed with strangers excluded and with the inclusion of the IOS item.

Across all participants within the friends–stranger sample, the URCS had a mean of 3.21 ($SD = 2.21$, range from 1.0 to 7.0, and a clearly bimodal distribution). As anticipated, the mean URCS score for strangers was 1.18 (mode = 1.0, $SD = 0.40$), compared with 5.18 ($SD = 1.25$) for friends, $F(1, 321) = 1,458.13$, $p < .001$, $\eta^2 = .82$. A univariate discriminant function with logistic regression correctly classified 96.3% of the partners as friends or strangers based on their URCS score.

In the third and fourth data sets, CFA analysis was again consistent with the unidimensionality of the URCS including and excluding the IOS item for both the family and the friend data. CFA was also consistent with unidimensionality and convergent validity with the friends and family data pooled. These results cross-validate the previous findings of unidimensionality and convergent validity with two additional data sets involving friends and family as the target.

The pooled family and friends data were also used to cross-validate the evidence for divergent validity. With the relational satisfaction items included in the model, the two-factor model again provided a better fit to the data than a unidimensional solution.

A multiple-groups CFA was conducted to test measurement equivalence between the unidimensional models with the family and friends as referents. The model specified equivalence in factor structure, factor loadings, factor covariance and errors. The data provided an acceptable fit to the fully equivalent model. Fit results are summarized in Table 3.

The URCS again correlated highly with relational satisfaction in the family ($r = .82$) and friends data ($r = .63$). These correlations were systematically higher than the IOS–relational satisfaction correlations ($r = .58$ and $.30$). The IOS was significantly correlated with relational satisfaction when partialing the URCS scores for family (partial $r = .18$, $p < .03$) but not for friends (partial $r = -.05$, *ns*).

Mean scores by relationship types were again consistent with validity (see Table 4). For friend types, the URCS produced an effect size of $\eta^2 = .36$, compared with $\eta^2 = .18$ and $\eta^2 = .13$ for IOS and relational satisfaction, respectively. For the family data, the effect sizes were informally smaller ($\eta^2 = .09$, compared with $\eta^2 = .06$ and $\eta^2 = .06$, respectively).

Discussion

The goal of the current research was to develop and provide initial validity evidence for a new self-report instrument designed to improve the measurement of relationship closeness. Conceptualizing closeness as the extent of cognitive, affective, and behavioral interdependence and taking into account the strengths and limitations of two of the more prominent existing measures of closeness, the goals for the current study involved the development of a measurement alternative that was unidimensional, producing a single, highly reliable, construct valid score for closeness that is general across different types of relationships. The results suggest that the new scale is a construct valid measure of relationship closeness that offers psychometric improvement over existing measures.

The URCS is offered as an alternative to researchers seeking a single closeness score that both remains construct valid with respect to current conceptual underpinnings and is general across

Table 2
First Three Eigenvalues Obtained Through Principal Axis
Exploratory Factor Analysis

Study	1st	2nd	3rd
1	6.89	1.06	0.66
2	10.63	0.44	0.27
3	7.66	1.23	0.64
4	8.70	0.85	0.64

Table 3
Summary of Confirmatory Factor Analysis Model Fit

Data	CFI	NFI	RFI	RMSE	χ^2 (df)	α
Models assessing the unidimensional fit of the Closeness items						
Couple no IOS	.96	.94	.93	.055	229 (54)	.93
Couples + IOS	.96	.94	.94	.053	136 (65)	.93
Friends-strangers no IOS	.96	.96	.95	.028	992 (54)	.99
Friends-strangers + IOS	.97	.96	.96	.026	561 (65)	.99
Family, Study 3	.94	.93	.91	.059	425 (54)	.96
Friends, Study 4	.92	.91	.89	.079	387 (54)	.95
Study 3 & 4 pooled no IOS	.93	.92	.91	.069	797 (54)	.95
Study 3 & 4 pooled + IOS	.93	.92	.91	.068	863 (65)	.95
Study 3 & 4 equivalence	.95	.93	.93	.058	1582.02 (305)	.95
Models including both Closeness and Satisfaction items						
One factor: All	.94	.92		.083	860 (189)	
Two factors: All	.97	.92		.063	543 (188)	
Two factors: Revised	.97	.95		.056	459 (169)	
One factor: Male	.90	.89		.096	645 (189)	
Two factors: Male	.93	.92		.081	510 (188)	
Two factors: Revised: Male	.93	.89		.076	447 (169)	
One factor: Female	.94	.94		.085	534 (189)	
Two factors: Female	.98	.97		.065	332 (188)	
Two factors: Revised: Female	.98	.97		.060	292 (169)	
Cross-validation (Studies 3 & 4 pooled, without IOS)						
One factor	.91	.90		.099	1881 (135)	
Two factors	.95	.95		.068	1007 (134)	

Note. The two-factor revised model omitted closeness Item 6. No error terms were correlated in testing fit. The cross-validation tests included all items, but did not include the IOS. CFI = comparative fit index; NFI = normed fit index; RFI = relative fit index; RMSE = root-mean-square error; IOS = Inclusion of Other in the Self Scale.

relationship types. The current testing utilized data collected from romantic partners, friends, strangers, and family targets. Results from each sample yielded evidence that scores on the scale were unidimensional and internally consistent. In addition, a comparison of the closeness means by relationship subtype (on a scale of 1–7, strangers = 1.18, casual/just friends = 3.37–4.24, friends with benefits, good same-sex friends, casually dating = 5.02–5.33, family = 4.65–5.52, seriously dating, best friends, and engaged = 6.00–6.15, and spouse = 6.75), revealed a pattern of values that are consistent with intuition about the specific subtype of relationship. It can be observed that participants who indicated they were engaged reported being closer than casual daters, who were in turn closer than friends with benefits, and so on. Not surprisingly, participants who reported being just friends in this sample were found to be the least close, except when compared with strangers who scored as not at all close. To the extent that this array of ascending–descending means reflects the relative levels of closeness within these relational subtypes, additional evidence of validity is provided. Examination of raw scores shows that people who had not previously met scored as low as the scaling allowed. Alternatively, even for engaged couples and best friends, there was some room at the top for additional gains in closeness. Further, on the basis of the effect sizes associated with differences between relationships types, the URCS performed better than the IOS or the satisfaction measure. Given the data reported here, the URCS appears to discriminate nicely among the gradations of relationships that are subsumed under the umbrella label of social and personal relationships.

One of the primary advantages of the URCS over Aron et al.'s (1992) IOS is the higher reliability obtained by averaging across

multiple items. It will be recalled that the test–retest correlations of the IOS ranged from $r = .83$ to $r = .86$. Although correlations of this magnitude are not considered low, they are below the alphas typically observed using the URCS ($\alpha = .92$ to $\alpha = .99$). One disadvantage of the relatively lower reliability inherent in single item measures is attenuated effects. This is exemplified in the current data by examining the closeness–relational satisfaction correlation. In the Study 1 data, the URCS as a whole correlates with satisfaction at $r = .73$. This correlation drops to $r = .48$ using only the single item IOS. The partial correlation between the IOS and satisfaction when controlling for the URCS (scored without the IOS item) was partial $r = .09$, *ns*. Substantially larger effect sizes for the URCS relative to the IOS were also observed for distinguishing between relationship types. This was especially true for distinguishing between levels of friendship. Thus, employing the URCS produces larger effects, greater statistical power, and smaller error terms due to enhanced reliability.

One concern is that the URCS consistently correlated more highly with relationship satisfaction than with the IOS. Taken alone, this finding is not consistent with either convergent or discriminant validity. Nevertheless, CFA findings suggested a different conclusion. When the URCS items, satisfaction items, and the IOS item were included in the same analysis, a two-factor model consistently provided the best fit with the IOS loading on the same factor as all but one of the URCS items, and satisfaction items loading on a different factor. Also consistent with discriminant validity, the URCS scores consistently provided better discrimination between relationship types than did the satisfaction scores. Nevertheless, it appears that the URCS and IOS measure slightly different constructs. The IOS was intended to measure

Table 4
Mean Scores and Effect Sizes for IOS, URCS, and Satisfaction
by Relationship Type

Relationship	IOS	URCS	Satisfaction
Study 1			
Friends	3.62 _a	4.24 ^a	5.06
Friends w/benefits	3.94 _a	5.11 _b	5.40
Casual dating	4.56 _{ab}	5.39 _{bc}	5.24
Serious dating	5.30 _{bc}	6.00 _{cd}	5.68
Engaged	5.83 _c	6.15 _d	5.74
η^2	.17 ^a	.29 ^a	.05 ^a
Study 2			
Strangers	1.17	1.18	—
Friends	5.14	5.18	—
η^2	.77 ^a	.82 ^a	—
Study 3			
Casual friend	3.10 _a	3.37 _a	4.38 _a
Close friend	4.73 _b	5.11 _b	5.47 _b
Best friend	5.50 _b	6.00 _c	5.95 _b
η^2	.18 ^a	.36 ^a	.13 ^a
Study 4			
Brother	4.21 _a	4.65 _a	4.54 _a
Father	4.21 _a	5.14 _a	4.95 _{ab}
Sister	4.97 _{ab}	5.47 _a	5.43 _{ab}
Mother	4.82 _{ab}	5.52 _a	5.45 _{ab}
Spouse	6.40 _b	6.75 _b	6.27 _b
η^2	.06 ^a	.09 ^a	.06

Note. Means in the same column with different subscripts are significantly different at $p < .05$ with Tukey's B post hoc test. Relationship satisfaction was not measured in Study 2, hence the dashes. IOS = Inclusion of Other in the Self Scale; URCS = Unidimensional Relationship Closeness Scale; w/ = with.

^aOmnibus one-way analysis of variance for effect size statistically significant at $p < .05$.

self-concept overlap, while the URCS items are intended to measure psychological and behavioral interdependence.

The reader may notice that the URCS had a tighter factor structure and a higher reliability in the Study 2 friends-stranger data than the other three data sets. This is a function of the increased variance in the Study 2 data. In the romantic couple data, for example, all participants filled out the URCS in reference to the partner they brought with them to the lab. By contrast, in the friends (Study 2) data, half completed the scale in reference to a friend and half completed it in reference to a stranger, according to random assignment. This experimental induction instilled variance in the friend data that was not present in the other data sets (the standard deviations were 2.21, compared with 0.93, 1.45, and 1.18, respectively). This additional variance produced larger interitem correlations, resulting in more variance that could be accounted for by the primary factor, larger factor loadings, and higher reliability. It is important to note that although the scale was more reliable under ideal circumstances in which variance in relationship closeness was experimentally maximized, it performed well in both data sets with alphas remaining above .90 across applications. Moreover, the improved reliability and factor structure observed with experimentally induced variance is consistent with what one would expect from a construct valid measure. Nevertheless, the URCS, like all scales, will perform better when the data provide more rather than less variance.

Another concern was that in the models where relational satisfaction was included, Item 6 lacked divergent validity across data

sets, and several other items lacked discrimination in one specific data set or another (Items 6 and 8 with friends in the fourth data set, and Items 1, 3, 4, and 6 in the family data). It is unclear why Item 6 consistently loaded as highly or more highly on satisfaction than on closeness, but Item 6 might also cross-load on certainty or commitment dimensions. For this reason, future researchers may consider omitting Item 6 if satisfaction, certainty, commitment, or other similar measures are also being used, and the goal of that research is to distinguish between highly correlated variables. However, in the analyses examining only the closeness items, Item 6 loaded highly on the closeness dimension and contributed positively to scale reliability. Thus, Item 6 might be used or not used selectively, depending on whether the researcher needs to distinguish closeness from closely related constructs or prefers to throw a slightly larger conceptual net. It should also be kept in mind that closeness and relational satisfaction were correlated at between $r = .63$ and $r = .82$ in the three data sets that included satisfaction measures; therefore, satisfaction provides an extremely rigorous test of divergent validity. Further, excluding cross-loading URCS items did not substantially lower the closeness-satisfaction correlation. Therefore, items were not culled from the scale.

Other limitations with the data reported here also exist. Most obvious is that student samples were used. The participants were predominantly female young adults. It remains unknown how the scale would perform with older people in different types of relationships. Some readers may also see the lack of reverse-scored items as a limitation. However, the strangers in the second data set scored at the bottom of the potential scale range, showing that a full range of scores emerge. Finally, additional sorts of validation tests would be desirable.

Taken together, the results from these four samples paint an optimistic picture for the URCS as a new and improved tool for assessing relationship closeness. If current theorizing is correct, closeness occurs within relationships other than friendships, family, and dating relationships. Thus, future researchers should determine how the URCS performs within other types of relationships (e.g., marital relationships, coworkers). This would further establish the range of relationships to which the URCS can be applied. Additionally, the URCS should be subjected to further validity testing via such procedures as nomological nets (Cronbach & Meehl, 1955) and multitrait-multimethod validation (Campbell & Fiske, 1959). Nevertheless, current findings are sufficiently promising to allow the confident use of the scale.

References

- Afifi, T. D., & Schrodt, P. (2003). "Feeling caught" as a mediator of adolescents' and young adults' avoidance and satisfaction with their parents in divorced and non-divorced households. *Communication Monographs*, 70, 142-173. doi:10.1080/0363775032000133791
- Altman, I., & Taylor, D. A. (1973). *Social penetration: Development of interpersonal relationships*. New York, NY: Holt McDougal.
- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, 63, 596-612. doi:10.1037/0022-3514.63.4.596
- Aron, A., Aron, E. N., Tudor, M., & Nelson, G. (1991). Close relationships as including other in the self. *Journal of Personality and Social Psychology*, 60, 241-253. doi:10.1037/0022-3514.60.2.241
- Aron, A., & Fraley, B. (1999). Relationship closeness as including the other in the self: Cognitive underpinnings and measures. *Social Cognition*, 17, 140-160. doi:10.1521/soco.1999.17.2.140

- Berscheid, E., Snyder, M., & Omoto, A. M. (1989). The Relationship Closeness Inventory: Assessing the closeness of interpersonal relationships. *Journal of Personality and Social Psychology, 57*, 792–807. doi:10.1037/0022-3514.57.5.792
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait–multimethod matrix. *Psychological Bulletin, 56*, 81–105. doi:10.1037/h0046016
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*, 281–302. doi:10.1037/h0040957
- Floyd, K., & Parks, M. R. (1995). Manifesting closeness in the interactions of peers: A look at siblings and friends. *Communication Reports, 8*, 69–76. doi:10.1080/08934219509367612
- Hendrick, S. S. (1988). A generic measure of relationship satisfaction. *Journal of Marriage and the Family, 50*, 93–98.
- Kelley, H. H., Berscheid, E., Christensen, A., Harvey, J. H., Huston, T. L., Levinger, G., . . . Peterson, D. R. (1983). *Close relationships*. New York, NY: Freeman.
- Levine, T. R., & McCormack, S. A. (1992). Linking love and lies: A formal test of the McCormack and Parks model of deception detection. *Journal of Social and Personal Relationships, 9*, 143–154. doi:10.1177/0265407592091008
- Maxwell, G. M. (1985). Behaviour of lovers: Measuring the closeness of relationships. *Journal of Social and Personal Relationships, 2*, 215–238. doi:10.1177/0265407585022007
- Parks, M. R., & Floyd, K. (1996). Meanings for closeness and intimacy in friendship. *Journal of Social and Personal Relationships, 13*, 85–107. doi:10.1177/0265407596131005
- Sternberg, R. J. (1988). *The triangle of love: Intimacy, passion, commitment*. New York, NY: Basic Books.
- Walker, A. J., & Thompson, L. (1983). Intimacy and intergenerational aid and contact among mothers and daughters. *Journal of Marriage and the Family, 45*, 841–849. doi:10.2307/351796
- Wood, J. T., & Inman, C. C. (1993). In a different mode: Masculine styles of communicating closeness. *Journal of Applied Communication Research, 21*, 279–295. doi:10.1080/00909889309365372
- Yaughn, E., & Nowicki, Jr., S. (1999). Close relationships and complementary interpersonal styles among men and women. *The Journal of Social Psychology, 139*, 473–478. doi:10.1080/00224549909598406

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