

# Short report: Inclusion of other in the self scale: An adaptation and exploration in a diverse community sample

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## Abstract

We adapted the widely used measure of relationship closeness, the Inclusion of Other in Self Scale (IOS), to assess communal coping (IOS-CC). Communal coping is a construct that reflects a shared appraisal of a stressor (“our problem” instead of “my problem”) and collaborative action to manage the stressor. We administered the IOS and the IOS-CC to a racially and economically diverse sample of persons with type 2 diabetes and their partners ( $n = 207$  couples) and examined how a subset ( $n = 85$  couples) interpreted the IOS-CC as well as the IOS. The IOS-CC was largely interpreted as intended. The IOS reflected interpersonal connection, as expected, but also a number of other relationship constructs. The IOS-CC and IOS were positively related, but empirically distinguished by stronger connections of the IOS-CC to communal coping and stronger connections of the IOS to relationship quality. Future researchers should consider using the IOS-CC to measure communal coping when a simple, visual, and less time-intensive measure is needed and consider the different ways the IOS is conceptualized by diverse populations.

## Keywords

Close relationships, closeness, communal coping, Inclusion of Other in Self

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The richness and complexity of close relationship constructs can sometimes be difficult to measure. When creating measures, researchers need to be wary of eliciting socially desirable responses and also create items that are easily understood by lay individuals and that accurately reflect the construct. One unique instrument that addresses these concerns is the Inclusion of Other in Self Scale (IOS; Aron, Aron, & Smollan, 1992). The IOS, a relationship closeness scale, is a single visual item that can be administered within a few minutes and is expected to transcend educational and literacy limitations due to its visual nature.

The primary aim of this work was to capitalize on the strengths of the IOS to develop a novel measure of communal coping, a construct that has received increased attention in the relationship literature (e.g., Helgeson, Jakubiak, Van Vleet, & Zajdel, 2018). Communal coping is defined as an interpersonal form of coping in which a person adopts a shared appraisal of a stressor (“our problem” rather than “my problem”) and engages in collaborative action to manage the stressor (Helgeson et al., 2018; Lyons, Mickelson, Sullivan, & Coyne, 1998). In the context of stressful events, communal coping is theorized to strengthen relationships, reduce psychological distress, and enhance physical well-being. Research has substantiated that claim (see Helgeson et al., 2018; Lee & Roberts, 2018, for reviews). Communal coping has been measured in a number of ways, including self-report, use of first-person plural pronouns, and observed behavior during a stressor discussion (see Helgeson et al., 2018, for a review), but there is no clear consensus on how to best capture this construct. Researchers in the area of relationships and health who work with community populations could benefit from a brief, face-valid measure that avoids some of the problems with self-report and can be used with lower literacy samples. Here, we adapted the IOS to measure communal coping (IOS-CC) by tailoring the instructions, an approach previous researchers have successfully taken to measure in-group identification (e.g., Tropp & Wright, 2001). In a previous report on a subsample of the present study, we showed the IOS-CC was linked to psychological and physical health, independent of the IOS (Helgeson, Jakubiak, Seltman, Hausmann, & Korytkowski, 2017). Here we determine whether the IOS-CC captures communal coping by eliciting respondents’ interpretations of the measure and examining the relation of the IOS-CC to other measures of communal coping.

A secondary aim of this work was to examine how the original IOS is perceived by an economically and racially diverse sample that spans adulthood, as the majority of work in the close relationship literature with the IOS has been restricted to small, well-educated samples (e.g., Aron et al., 1992, but see Gächter, Starmer, & Tufano, 2015, for an exception [nonstudent samples]). When asked to interpret the meaning of this measure, two samples (36 college students, 13 professional women) most often reported “connectedness,” which supported the authors’ theory that the IOS is a measure of cognitive interdependence. Other responses included independence-identity (independence vs. dependence in relationship), feeling close (care, trust, love), and behaving close (time together). Given the limited instructions to complete the IOS (i.e., which set of circles depicts your relationship), it is important to know if people who vary in race and education interpret the IOS similarly. Thus, we also aim to examine whether interpretations of the IOS in a large, diverse community sample are similar to interpretations found in previous samples.

The study had two goals. First, we examined how a racially and economically diverse community sample of adults interpreted the IOS-CC and the IOS. Second, to determine whether the two measures could be distinguished, we examined how the IOS-CC and IOS were related to each other and other measures of communal coping and relationship quality. We expected the IOS-CC and the IOS to be positively related, as recent theory suggests high relationship quality is an antecedent to communal coping (Helgeson et al., 2018). However, we expected the IOS-CC to be more strongly related to communal coping and the IOS to be more strongly related to relationship quality.

## **Method**

### ***Participants***

The study consisted of 207 couples: participants recently diagnosed with type 2 diabetes and their partners (72% married, 28% cohabiting, 98% heterosexual). Patients were 55% male; 52% White, 41% Black, 7% mixed race; average age = 53 years ( $SD = 11$ ), average length of diagnosis = 1.88 years ( $SD = 1.68$ ). Partners were 45% male; 51% White, 41% Black, 8% mixed race; average age = 53 years ( $SD = 12$ ). A minority of patients (26%) and partners (34%) were college graduates. Average household income was US \$50–59,999. Because the study was underway when the impetus for examining the interpretation of the IOS was developed, only the last 85 couples enrolled in the study participated in the interpretation protocol. There were no demographic differences between this subgroup and the full sample with the exception of race. Fifty-five percent of patients in the subsample were Black compared to 41% in the full sample.

### ***Procedure***

Participants were recruited from the community via advertisements in physician offices, churches, community centers, mass transit, and health fairs. Interested persons contacted the study coordinator, were screened for eligibility, and scheduled for an interview. The IOS was administered prior to the IOS-CC, as the former was embedded in other general relationship quality measures and the latter was embedded in diabetes-specific measures. The interviewer read instructions aloud and provided participants with a response card to indicate answers. Couple members were interviewed separately.

At the end of the interview, the researcher showed participants the IOS and reminded them of the instructions and the responses they provided earlier. Participants were asked to explain what they had been thinking when they selected their response. Participants were explicitly told that there were no right or wrong answers. After responding, participants were prompted once with “why not X [one number lower than the response they gave] or Y [one number higher than the response they gave]” to provide an opportunity for elaboration. If participants could not articulate an answer, they were not pressured in any way, as we did not want to them to fabricate an answer to appease us. Responses were audiotaped and transcribed for subsequent coding.

The same approach was taken to capture respondents’ interpretation of the IOS-CC.

**Table 1.** Open-ended responses to IOS-CC and IOS.

	Patient percentage	Partner percentage
<b>IOS-CC</b>		
Diabetes support (partner involvement/effort/help in dealing with or taking care of diabetes)	49	57
Illness appraisal (whose diabetes is it)	32	29
Teamwork (work together, make decisions together)	30	37
Discussion of diabetes	25	21
Think alike (on same page)	20	16
<b>IOS</b>		
Connectedness (extent to which selves are a unit vs. separate entities)	38	34
Teamwork (work together, make decision together)	38	35
Think alike (on same page)	29	29
Time together (doing things together)	27	34
Quality of relationship (how close to perfect, how well get along)	21	23
Closeness	18	17
Independence versus dependence (related to identity)	8	10
Support (extent to which partner supports/helps patient)	8	9

Note. IOS = Inclusion of Other in Self Scale; IOS-CC = IOS to measure communal coping.

### Coding responses

The first author and a research assistant reviewed a subset of IOS responses, created a list of response categories, and then reviewed another subset of responses to ensure response categories were exhaustive. Two independent raters reviewed all responses and placed them into categories. Discrepancies were resolved by a third independent rater ( $\kappa_{\text{patients}} = .82$ ;  $\kappa_{\text{partners}} = .80$ ). A similar procedure was followed for the IOS-CC ( $\kappa_{\text{patients}} = .70$ ;  $\kappa_{\text{partners}} = .74$ ). Participants could provide multiple responses for each measure. Responses are given in Table 1.

### Instruments

**Inclusion of Other in Self Scale.** This scale included a set of seven pairs of concentric circles (one labeled “Self” and one labeled “Other”) that vary in their degree of overlap from 1 (*two separate circles*) to 7 (*almost completely overlapping circles*; Aron et al., 1992). Participants selected the pair of circles that best depicted their relationship (see Supplemental Figure 1a).

**IOS to measure communal coping.** The same set of concentric circles was presented, but participants were asked to select which picture best described how they and their partner deal with diabetes (see Supplemental Figure 1b).

**Relationship quality.** We used the 5-item Quality of Marriage Index (Norton, 1983) ( $\alpha_{\text{patient}} = .94$ ;  $\alpha_{\text{partner}} = .94$ ) and the 6-item emotional intimacy subscale from the Personal

Assessment of Intimate Relationships scale (Schaefer & Olson, 1981;  $\alpha_{\text{patient}} = .86$ ;  $\alpha_{\text{partner}} = .85$ ). The 7-point response scale for both instruments ranged from strong disagreement to strong agreement.

**Communal coping.** Participants completed a 4-item self-report measure, which tapped the appraisal (1 item, “When you think about problems related to your diabetes, to what extent do you view those as ‘our problem’ (shared by you and your spouse equally) or mainly your own problem?”) and collaboration (3 items, e.g., “When a problem related to your diabetes arises, how much do you and your spouse work together to solve it?”;  $\alpha_{\text{patient}} = .71$ ;  $\alpha_{\text{partner}} = .73$ ) components of the communal coping definition. Responses for the appraisal item varied on a 3-point scale ranging from completely the patient’s problem to both partners’ problem. Participants responded on a 5-point scale for the collaboration items, ranging from none of the time to all of the time. The four items were standardized, and the average was taken. The scale was developed for this study, has been reported elsewhere (Helgeson et al., 2018), and includes the two communal coping self-report items used by Rohrbaugh, Mehl, Shoham, Reilly, and Ewy (2008).

We also assessed “we-language,” which has been considered by previous researchers to reflect a communal approach to coping (e.g., Karan, Rosenthal, & Robbins, 2018). Couple-members were separately asked to describe how they were coping with diabetes. Responses were audiotaped, and later transcribed and submitted to the Linguistic Inquiry Word Count (Pennebaker & Francis, 1996) program to compute the proportion of first-person plural pronouns (e.g., we). Because this variable was positively skewed, we used a square-root transformation to create a more normal distribution.

Finally, communal coping was assessed observationally. This measure has been described in detail elsewhere (Van Vleet, Helgeson, Seltman, Korytkowski, & Hausmann, 2018). Briefly, couples were videotaped during an 8-min discussion about difficulties in coping with diabetes. Two raters coded communal coping in the patient, and two different raters coded communal coping in the partner during the discussion. Interrater reliability, measured by the intra-class correlation coefficient, was .79 for patients and .80 for partners.

## **Overview of analyses**

First, we present interpretations of the IOS-CC, and then we present interpretations of the IOS for descriptive purposes. We examined the extent to which patients and spouses both identified the same response and found little evidence that concordance in interpretations of the IOS-CC or the IOS was related to greater communal coping (see Supplemental Table 1). Next, we used actor-partner interdependence models (APIM) to examine the relations of actor and partner IOS-CC to other measures of communal coping and relationship quality (Model 1) and to examine the relations of actor and partner IOS to measures of communal coping and relationship quality (Model 2). To determine whether the IOS-CC was more predictive of communal coping and whether the IOS was more predictive of relationship quality, we used APIM to predict each outcome by entering both actor and partner IOS-CC and actor and partner IOS into the equation (Model 3).

(The correlation matrix for all variables is shown in Supplemental Table 2.) In each APIM, we also present effects of role (patient/spouse).

## Results

### *Interpretations*

*IOS to measure communal coping.* As given in Table 1, the vast majority of patients (96%) and partners (91%) provided at least one interpretation of the IOS-CC. The most frequently mentioned interpretation for both patients and partners was partner support (i.e., partner helped patient with diabetes). This response was followed by illness appraisal (whose diabetes is it) and teamwork (i.e., collaboration) for patients. For partners, teamwork was more frequent than illness appraisal. The other two responses were discussion of diabetes and think alike.

*Inclusion of Other in Self Scale.* The vast majority of patients (93%) and partners (92%) provided at least one interpretation of the IOS. As given in Table 1, the four most common interpretations for patients were connectedness, teamwork, think alike, and time together. The same four responses were most common among partners, but in a slightly different order: teamwork, connectedness, time together, and think alike. Other responses included overall quality of the relationship, closeness, independence versus dependence, and support.

### *Comparison of IOS-CC versus IOS*

The IOS-CC and IOS were moderately related for patients,  $r = .51$ ,  $p < .001$ , and partners,  $r = .45$ ,  $p < .001$ .

As provided in Model 1 of Table 2, actor and partner IOS-CC were related to the three measures of communal coping, as well as greater intimacy and relationship quality. As provided in Model 2, actor and partner IOS were related to greater intimacy and relationship quality, and actor IOS was related to the three communal coping measures. When both the IOS-CC and the IOS were entered into an APIM to predict outcomes, only the IOS-CC was related to other communal coping measures and only the IOS was associated with greater intimacy and relationship quality (see Model 3).<sup>1</sup>

## Discussion

The first goal of this study was to determine how a racially and economically diverse community sample interpreted the measure of communal coping that we developed—the IOS-CC. The most frequent interpretation of the IOS-CC by both patients and partners was support—specifically, partner involvement and assistance with diabetes. This is consistent with communal coping theory which posits that communal coping will be directly linked to support and the interpretation of support as collaboration (Helgeson et al., 2018). The next two most frequent responses were illness appraisal (i.e., whose diabetes is it?) and collaboration (i.e., teamwork)—the defining components of communal coping. Interestingly, another prominent interpretation was discussion of diabetes.

**Table 2.** APIM relations of IOS-CC and IOS to communal coping and relationship indices.

	Self-reported CC	We-talk	Observed CC	Intimacy	Relationship quality
<b>Model 1</b>					
Role	.01 (.05)	-.14 (.02)***	-.25 (.08)**	.14 (.09)	.03 (.09)
IOS-CC A	.17 (.02)***	.02 (.01)***	.10 (.03)***	.15 (.03)***	.16 (.03)***
IOS-CC P	.06 (.02)***	.02 (.01)*	.07 (.03)*	.07 (.03)*	.06 (.03)*
<b>Model 2</b>					
Role	.00 (.06)	-.14 (.02)***	-.26 (.08)**	.13 (.09)	.01 (.08)
IOS A	.11 (.02)***	.02 (.01)*	.11 (.03)***	.38 (.03)***	.41 (.03)***
IOS P	.03 (.02)	.00 (.01)	.04 (.03)	.12 (.03)***	.12 (.02)***
<b>Model 3</b>					
Role	.01 (.05)	-.14 (.02)***	-.25 (.08)**	.13 (.09)	.01 (.08)
IOS-CC A	.17 (.02)***	.02 (.01)**	.08 (.03)**	.00 (.03)	.00 (.02)
IOS-CC P	.06 (.02)**	.02 (.01)*	.06 (.03)*	.02 (.03)	.00 (.02)
IOS A	.02 (.02)	.01 (.01)	.06 (.04) <sup>+</sup>	.38 (.04)***	.41 (.03)***
IOS P	.00 (.02)	-.01 (.01)	.01 (.04)	.11 (.04)**	.12 (.03)***

Note. APIM = actor-partner interdependence models; IOS = Inclusion of Other in Self Scale; IOS-CC = IOS to measure communal coping. A refers to actor, P refers to partner; Role is coded 0 = *patient*, 1 = *spouse*.

<sup>+</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Communal coping theory posits that illness appraisal and collaboration take place within the context of communication (Helgeson et al., 2018; Lyons et al., 1998). Thus, results suggest that respondents interpreted the IOS-CC as a measure of communal coping.

In developing the IOS-CC, it was important to show that it was not redundant with the IOS and that it was linked to other measures of communal coping. These ideas were confirmed. The IOS-CC and the IOS were moderately correlated, which is expected as relationship quality is considered to be an antecedent to communal coping (Helgeson et al., 2018). However, the IOS-CC was more strongly connected to communal coping and the IOS was more strongly connected to relationship quality measures, indicating that respondents were able to distinguish between the two measures.

A secondary study goal was to examine whether a community sample, diverse in terms of age, race, education, and income, would construe the IOS as its creators intended. In some ways, the answer is yes. Connectedness was the most frequent response provided by patients and nearly the most frequent response provided by partners. However, in the study by Aron, Aron, and Smollan (1992), interpersonal connection was identified by 86% of college students and 67% of their small adult sample compared to 38% of patients and 34% of partners in the present study. Thus, interpersonal connectedness was not as much at the forefront of the minds of this sample. Other interpretations of the IOS that involved more concrete behaviors (e.g., teamwork, time together, thinking alike) were prominent in the minds of this community sample. These responses are similar to the categories of “behaving close” and “similarities” generated by Aron et al. (1992). A general response that emerged in this study, but not in Aron et al. (1992), was overall relationship quality, which suggests that community respondents have the sense that greater overlap indicates a better relationship but may not be able to articulate exactly what the IOS is designed to capture. Thus, future

researchers might want to consider the varied ways in which the IOS is construed by diverse samples and consider elaborating the instructions to guide respondents to interpret the IOS as desired.

By tailoring the IOS instructions to develop a measure of communal coping, interpretations of the IOS-CC were largely consistent with its definition: shared illness appraisal and collaboration. Because the IOS-CC capitalizes on the benefits of the IOS (being brief, easy to administer, alleviating concerns with literacy) and reflects the intended construct, we urge communal coping researchers to consider tailoring the IOS instructions to the specific illness or stressor under study to complement other existing measures of communal coping.


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## Open research statement

This research was not pre-registered. The data used in the research are available. The data can be obtained from Dr. Vicki S. Helgeson by emailing [vh2e@andrew.cmu.edu](mailto:vh2e@andrew.cmu.edu)

## Supplemental material

Supplemental material for this article is available online.

## Note

1. Two Inclusion of Other in Self Scale (IOS) to IOS-CC by role interactions appeared that are presented in Supplementary Figures 2 and 3. There were no IOS by role interactions.

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