The Circumplex Structure of Interpersonal Sensitivities

Christopher J. Hopwood,[1] Emily B. Ansell,[2] Aaron L. Pincus,[3] Aidan G. C. Wright,[3] Mark R. Lukowitsky,[3] and Michael J. Roche[3]

[1]Michigan State University

[2]Yale University School of Medicine

[3]Pennsylvania State University

ABSTRACT Previous research on aversive interpersonal behavior has provided limited links between interpersonal sensitivities and comprehensive models of personality and social behavior. Study 1 ($N = 1,336$) of this article demonstrated that interpersonal sensitivities can be mapped onto the interpersonal circumplex and that people generally find others' behavior that is least similar to their own generally most aversive. In Study 2 ($N = 299$), a broader array of correlates with interpersonal sensitivities was investigated, and results again suggested that interpersonal opposites are generally perceived as most aversive. Study 3 ($N = 315$) specified romantic, platonic, or nonclose relationships and again found this pattern. Conceptualizing sensitivities with the interpersonal circumplex model permits investigators to distinguish general from specific kinds of sensitivity, allows for tests of the convergent and discriminant validity of interpersonal sensitivities, and integrates sensitivities into a well-established nomological net composed of multiple constructs relevant to social behavior and interpersonal dysfunction.

Each of us can be irritated by teasing (Kowalski, 2001), complaining (Kowalski, 1997), violations of personal closeness norms (Cunningham, Shamblen, Barbee, & Ault, 2005), or other bothersome interpersonal behavior. Interpersonal irritants have the potential to affect

The authors would like to thank Terry Tracey for his statistical consultation.

Correspondence concerning this article should be addressed to Christopher J. Hopwood, Michigan State University, Psychology Department, 107A Psychology, East Lansing, MI 48824. Email: hopwood2@msu.edu.

Journal of Personality 79:4, August 2011

DOI: 10.1111/j.1467-6494.2011.00696.x

quality of life by introducing relationship frustration (Cunningham, Barbee, & Druen, 1997), provoking negative emotions (Stroud, Tanofsky-Kraff, Wilfley, & Salovey, 2000), negatively affecting occupational or other role performance (Harris, Harvey, & Kacmar, 2009), and contributing to poor health (Denson, Spanovic, & Miller, 2009; Miller, Rohleder, & Cole, 2009). It is intuitive that each of us is likely more or less sensitive to others' irritating behavior and differentially sensitive to varying constellations of interpersonal irritants. However, little is known about *individual differences* in interpersonal sensitivities. The absence of a comprehensive system for organizing individual differences in potential interpersonal sensitivities has inhibited research on this topic (Kowalski, 2001; O'Connor, 2007). The purpose of this research was to develop a model of interpersonal sensitivities within which hypotheses about their associated properties and processes could be tested.

Researchers studying close relationships have conceptualized interpersonal irritants as "social allergens" (Cunningham et al., 1997). Cunningham et al. (2005) described a social allergen as "an emotion-rousing behavior or situation created by another person that is seen as unpleasant, but not unbearably aversive, by objective observers. Through repeated exposure at periodic intervals, or through prolonged initial contact, a social allergen may produce a social allergy in the individual. A social allergy is defined as a reaction of hypersensitive annoyance or disgust to a social allergen" (p. 274). In this conceptualization, social allergens parallel biological allergens in that they are common, aversive, and follow a specific course. With respect to this third property, Cunningham et al. (2005) suggested that early in relationships, partners do not fully notice or give objective feedback about irritating behavior (Sprecher & Metts, 1999). However, as the relationship develops and the partners become more comfortable, aversive behaviors might increase (Sprecher & Felmlee, 1993) due to diminishing efforts to manage impressions. This may occur just as the person to whom one is aversive becomes more aware of their existence and regularity because one's perceptions are less clouded by one's initial optimism and passion. Concurrently, behaviors that were initially regarded as attractive in romantic partners can become aversive as the relationship develops (Felmlee, 1995, 2001). This could cause an increase in the overall level of interpersonal irritation in the dyad. Ultimately, this dynamic puts the irritated party in the position of having to choose between tolerating

the allergy, treating the allergen through confrontation, or limiting exposure by ending the relationship.

Social allergens theory offers precise and testable predictions about the course of interpersonal irritants and sensitivities. However, the nature of social allergens in close relationships may not generalize to interpersonal sensitivities in other contexts. For example, some research suggests that interpersonal dynamics vary across close and nonclose relationships (Moskowitz, Ho, & Turcotte-Tremblay, 2007). Research also indicates that individuals tend to habituate, rather than become more sensitive, to the aversive interpersonal behaviors of family members (e.g., Vangelisti, Young, Carpenter-Theune, & Alexander, 2005). This may occur because there is less freedom to choose one's family and greater negative consequences for ending familial ties than romantic relationships. These findings suggest that varying interpersonal processes may characterize different kinds of relationship roles. The existence of a general model of individual differences in interpersonal sensitivities would provide a medium to test hypotheses about the impact of relational context on patterns of aversive behaviors and reactions to those behaviors.

Henderson and Horowitz (2006) initiated this effort by broadening the conceptualization of social allergens to apply to all kinds of relationships. In their theory, others' interpersonal behaviors are irritating because they frustrate interpersonal motives (Horowitz et al., 2006). For instance, individuals who tend to value independence, autonomy, and social distance would be expected to be most frustrated by those who are clingy and dependent. Conversely, those who value personal authority and being in control should be most frustrated by others who are arrogant, bossy, and act superior (Henderson & Horowitz, 2006). This framework suggests that people may be differentially sensitive to specific forms of aversive behavior of others because their interpersonal motives vary. For Henderson and Horowitz, these motives vary specifically along the dimensions of agency and communion (Bakan, 1966).

This is not surprising because many other domains of interpersonal behavior have also been organized around these dimensions in the form of the interpersonal circumplex (IPC; see Figure 1; Leary, 1957). Indeed, the use of the IPC as an integrative nomological net within which to describe various levels of interpersonal behavior has served to facilitate communication across personality, clinical, and social researchers (Gurtman, 1997; Pincus, Lukowitsky, & Wright,

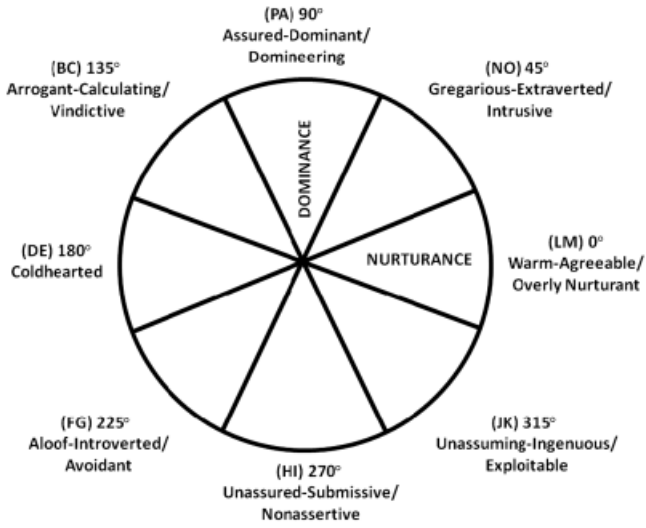

Figure 1
The interpersonal circumplex.

2010; Wiggins, 1991). The development and use of multiple IPC measures to assess traits, problems, values, efficacies, and other interpersonal domains facilitate a broad understanding of different levels of interpersonal behavior. As such, the IPC would appear well suited to provide a comprehensive framework for conceptualizing and testing hypotheses regarding individual differences in interpersonal sensitivities.

Such an approach would complement previous efforts to categorize social allergens according to the motives or contexts in which they occur, rather than by their interpersonal "flavor." Cunningham et al. (1997) arranged social allergens along the contextual dimension of personalism (whether the behavior is specific or nonspecific to the relationship) and the motivational dimension of intentionality (whether the behavior is purposeful or habitual). These yield four classes of social allergens: Uncouth habits are neither personal nor intentional, inconsiderate acts are personal but not intentional, intrusive behaviors are both intentional and personal, and norm violations are intentional but not personal. Because this scheme focuses on the motives and context of the allergen, it leads to categories that are likely to indicate the level of aversiveness versus tolerability (e.g., allergens might generally be more tolerable if they are not intentional or personal). In contrast, content-based categories would

likely indicate individual differences in sensitivities to the specific allergens themselves. Past measures of individual differences in social sensitivity have also tended to be nonspecific in terms of the aversive interpersonal behavior or allergic reactions (e.g., Bancila & Mittelmark, 2009; Leary & Kowalski, 1993).

Although it is likely that some people may be more generally sensitive to irritating social behavior than others, it is also probable that individual differences exist with regard to the kinds of *specific irritants* that are most bothersome for certain individuals. For instance, diagnostic criteria for some mental disorders imply generalized interpersonal sensitivity, such as the rigid and inflexible expectations for others' behavior typically associated with obsessive-compulsive personality disorder (PD; American Psychiatric Association [APA], 1994; Ansell, Pinto, Edelen, & Grilo, 2008; Ansell et al., 2010). Other disorders imply greater sensitivity to specific behaviors, such as the sensitivity to indifference from others characteristic of dependent PD (APA, 1994; Pincus & Gurtman, 1995). The kind of behaviors that might be seen as irritating to an individual with obsessive-compulsive PD may fall in any area of the IPC. For example, individuals with this diagnosis may be bothered by the warm-submissive person's willingness to agreeably forgive others' transgressions, the cold-dominant person's willingness to ignore authority, or the warm-dominant person's capacity to be unauthentic for the purposes of superficial attention. In contrast, dependent individuals are thought to strongly desire the instrumental support and emotional concern of others. Thus, individuals with dependent PD would likely be sensitive to others' coldness or distance, but they would be less likely to find excessive warmth and affiliation aversive.

The geometry of the IPC confers the capacity to assess both general and specific individual differences in interpersonal behavior (Gurtman, 1992; Gurtman & Balakrishnan, 1998). For example, the Inventory of Interpersonal Problems–Circumplex (IIP-C; Alden, Wiggins, & Pincus, 1990) can be scored in a manner that distinguishes overall item endorsement, or elevation, from a summary of item endorsement patterns across specific octant scales resulting in a specific angular displacement (Gurtman & Balakrishnan, 1998). These geometric parameters can be interpreted as indicating generalized interpersonal distress and the specific nature of distressing interpersonal problems, respectively. Conceptualizing interpersonal sensitivities with the IPC should confer the same advantage and

thus permit modeling of different patterns of individual differences in interpersonal sensitivities. In practice, the symptomatic patterns described earlier would suggest that features of obsessive-compulsive PD should relate to one's overall level of interpersonal sensitivity, whereas features of dependent PD should relate more specifically to sensitivity to interpersonal coldness.

In addition to providing an effective model for capturing individual differences in interpersonal sensitivities, the IPC may also provide a method for conceptualizing the evolving nature of aversive behaviors and sensitivities. This is due to the model's capacity to integrate dispositional concepts with dynamic social processes. In interpersonal theory, dynamic interactions are conceptualized with the principle of complementarity (Carson, 1969; Kiesler, 1996; Sadler, Ethier, Gunn, Duong, & Woody, 2009; Sadler & Woody, 2003). Complementarity is the assumption that, all things equal, dyadic interpersonal behavior tends to be opposite in terms of agency (dominance pulls for submissiveness and submissiveness pulls for dominance) and similar in terms of communion (warmth pulls for warmth and coldness pulls for coldness). Complementarity allows predictions to be made in terms of the kinds of aversive interpersonal behaviors that are likely to be most bothersome for a person with a given interpersonal style. In particular, anticomplementary behavior (opposite in terms of communion but similar in terms of agency; Kiesler, 1996) would be anticipated to be most aversive. Specifically, dominant individuals might be expected to be bothered most by others' dominant behavior, and warm people might find others' coldness most aversive. This capacity to account for both individual differences in social sensitivities as well as dynamic processes associated with aversive interpersonal behavior represents a major advantage of conceptualizing interpersonal sensitivities within an IPC framework.

Notably, some initial research suggests that interpersonal sensitivities can be organized around the IPC. O'Connor (2007) had students rate people who did or did not bother them using the Interpersonal Adjective Scales (IAS; Wiggins, 1979). Although participants were able to describe an interpersonal irritant from any segment of the IPC when instructed to do so, when asked to rate IAS items freely, 97% of the participants viewed cold individuals as the most irritating. This may be due to the fact that, on the IAS, items on the warm side tend to be more socially desirable than on the cold side

(Hatcher & Rogers, 2009). In this way, overall sensitivity may have been confounded with the specific types of irritants that may be particularly bothersome, because cold IAS items would tend to be more bothersome to anyone regardless of individual differences in interpersonal sensitivities. Thus, it remains an open question whether a general model of interpersonal sensitivities that spans the surface of the IPC can be derived. If irritants do array around the IPC, a valid model describing aversive interpersonal behaviors beyond those that are primarily cold would facilitate further research.

In summary, interpersonal sensitivities provide a medium through which irritating behavior by others can promote negative emotions and maladaptive behavior. Individual differences in sensitivities to aversive interpersonal behaviors likely moderate relations between others' behavior and individuals' responses, suggesting the need for a comprehensive model to organize interpersonal sensitivities. Such a model would describe the range and structure of individual differences in interpersonal sensitivities and thus allow tests of conceptual issues, such as the degree to which sensitivities differ across close and other kinds of relationships and the correlates of specific interpersonal sensitivities. The purpose of the current research was to test whether interpersonal sensitivities could be structured by a general model of interpersonal behavior, the IPC. In Study 1, we developed a structural model of interpersonal sensitivities and examined individual differences in sensitivities in the context of other levels of interpersonal functioning. In Study 2, we cross-validated the structure suggested by Study 1 and assessed personality and psychopathology correlates of interpersonal sensitivities. In Study 3, we tested the similarity of this structure and observed correlates across romantic, platonic, and acquaintance relationship roles.

STUDY 1: INITIAL DEVELOPMENT OF THE INTERPERSONAL SENSITIVITIES CIRCUMPLEX

To develop a circumplex model of interpersonal sensitivities, interpersonal experts generated a large item pool of potentially aversive behaviors. Responses to the items were evaluated using principal component and circumplex analyses, leading to a final 64-item pool. The structure of this pool of items was cross-validated in an independent sample. We then examined the associations between

the scales of the interpersonal sensitivities circumplex (ISC) and other established measures of interpersonal dispositions.

We hypothesized that interpersonal sensitivities could be identified around the entire surface of the IPC and that a circumplex structure would be obtained in covariance analyses of identified sensitivities. Based on the principle of interpersonal complementarity (e.g., Sadler et al., 2009), we further predicted that individual differences in specific interpersonal sensitivities would exhibit anticomplementary associations with interpersonal dispositions. In particular, we expected ISC octant scales to correlate positively and most strongly with the IPC octants reflecting similarity on agency and opposition on communion (i.e., anticomplementarity).

The six study authors independently generated items describing potentially aversive interpersonal behaviors that, a priori, corresponded to the eight octants of the IPC (Figure 1). We emphasized interpersonal content as the primary source of aversion to avoid constraining the method to processes specific to certain kinds of relationships, and aimed to write items describing a relatively normal range of bothersome interpersonal behaviors in order to promote variability in responses. This process yielded an initial pool of 151 items equally represented across octants of the IPC (e.g., is bossy; doesn't want to be friends; cannot make decisions; acts like we're friends when we don't even know each other; tells me they love me; believes I can do no wrong; is clingy). The items were randomly arranged in a self-report protocol with the following instructions: *Below you will find a list of behaviors that other people may do. Most of the behaviors described in these items would bother most people to some extent. Please read each one and indicate how much each behavior particularly bothers you using the 8-point scale found on top of each page. There are no right or wrong answers.* Respondents were asked to rate how much it bothers them when another person engages in the item's behavior on a scale ranging from 1 (*Never, Not at All*) to 8 (*Extremely, Always Bothers Me*).

Method

Participants

The participants for this study were 1,336 mostly White college students (543 [40.6%] males, 791 [59.2%] females, 2 missing; average age 19.14 years). The participants were split randomly into a derivation Sample 1

($n = 649$) and a validation Sample 2 ($n = 687$) with consistent gender ratios. They completed the 151-item Interpersonal Sensitivities Circumplex (ISC) and the following battery of self-report measures for course credit online.

Measures

Interpersonal Adjective Scales (IAS). The IAS (Wiggins, 1995) is a 64-item self-report circumplex measure of interpersonal traits. The IAS has demonstrated consistently excellent circumplex and psychometric properties (e.g., Gurtman & Pincus, 2000; Wiggins, 1995) and had alpha coefficients in the present study ranging from .74 to .93.

Inventory of Interpersonal Problems–Circumplex (IIP-C). The IIP-C (Alden, Wiggins, & Pincus, 1990) is a 64-item circumplex measure of interpersonal distress and dysfunction. The IIP-C has been extensively validated in personality and clinical research (e.g., Ambwani & Hopwood, 2009; Cain, Pincus, & Grosse-Holtforth, 2010; Ruiz et al., 2004). Alphas in this sample ranged from .77 to .89.

Circumplex Scales of Interpersonal Values (CSIV). Valued interpersonal behaviors associated with the octants of the IPC were assessed using the 64-item CSIV (Locke, 2000). The CSIV exhibits robust circumplex structure (e.g., Acton & Revelle, 2002) and evidence of construct validity (Locke, 2003; Locke & Christensen, 2007). Alphas ranged from .73 to .84.

Circumplex Scales of Interpersonal Efficacy (CSIE). Participants' interpersonal self-efficacy, or confidence in their ability to perform specific interpersonal behaviors, was measured using the CSIE (Locke & Sadler, 2007). The CSIE has demonstrated convergent validity with other interpersonal circumplex scales (Locke & Sadler, 2007; Wright, Pincus, Conroy, & Elliot, 2009). Alphas ranged from .62 to .84.

Results and Discussion

We submitted ISC item responses in Sample 1 to a principal components analysis (PCA) with orthogonal (varimax) rotation. We anticipated a three-component (two interpersonal dimensions plus a general factor) solution consistent with construction of other IPC-based measures that have a general elevation component (e.g., Alden et al., 1990; Tracey, Rounds, & Gurtman, 1996). Examination of the scree plot suggested three components, with the first component indicating a general response style/severity indicator and the

other two components representing agentic and communal content dimensions. Items were then ipsatized to remove the general factor (e.g., Alden et al., 1990; Locke & Sadler, 2007). Next, items were retained or discarded through a series of iterative PCA analyses and examinations of item loadings, item communalities, items' resultant angular locations in the two-dimensional space, and overall conformity to IPC structure (e.g., Alden et al., 1990; Locke, 2000; Wiggins, Steiger, & Gaelick, 1981; Wiggins, Trapnell, & Phillips, 1988). We selected high communality items that effectively spanned the arc of the target octant. This resulted in a final pool of 64 items (8 items per octant; ISC items are available from the first author upon request).

We evaluated the circumplexity of the ISC using the randomization test of hypothesized order relations (Hubert & Arabie, 1987). Using an eight-octant circumplex model, there are 288 predictions about the relative magnitudes of correlations among the scales. We employed the RANDALL program (Tracey, 1997) to compute the number of predictions met in each sample, as well as a correspondence index (CI; Hubert & Arabie, 1987) to aid in interpretation of circular fit. The CI reflects the proportion of predictions met and thus can range from 1.00 (perfect fit) to –1.00 (all predictions violated). In Sample 1, the ISC returned a CI of .97 ($p < .001$), indicating 284 of 288 predictions were met. In Sample 2, the ISC returned a CI of .95 ($p < .001$), indicating 281 of 288 predictions were met. We concluded that the ISC conformed well to circumplex structure.

Figure 2 presents the interpersonal sensitivities circumplex (ISC) model. Each octant represents a tendency to be bothered by others' behaviors that are representative of that segment of the IPC. ISC (PA) was labeled Sensitive to Control, reflecting irritation with others' dominance and assertiveness (e.g., ''It bothers me when a person orders me around''). ISC (BC) was labeled Sensitive to Antagonism, reflecting irritation with others' misanthropy and surliness (e.g., ''It bothers me when a person is hostile''). ISC (DE) was labeled Sensitive to Remoteness, reflecting irritation with others' coldness and disaffiliation (e.g., ''It bothers me when a person doesn't want to be friends''). ISC (FG) was labeled Sensitive to Timidity, reflecting irritation with others' shyness and diffidence (e.g., ''It bothers me when people don't share their ideas'').

ISC (HI) was labeled Sensitive to Passivity, reflecting irritation with others' weakness and submissiveness (e.g., ''It bothers me when people cannot assert themselves''). ISC (JK) was labeled Sensitive to

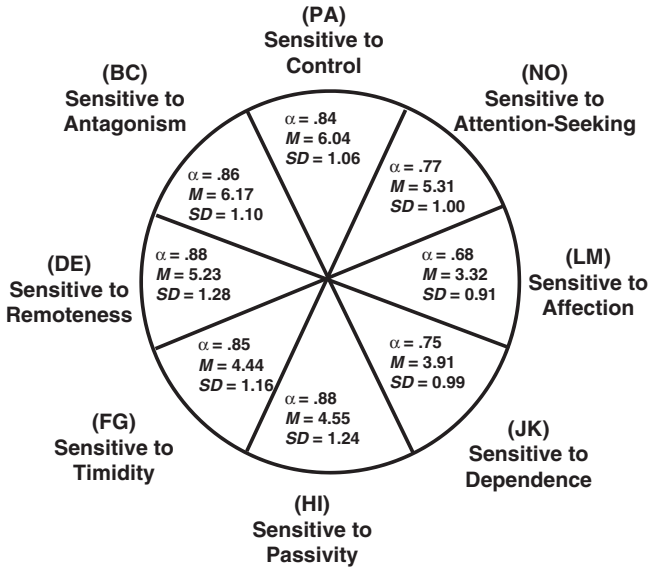

Figure 2
The interpersonal sensitivities circumplex (ISC) model.
Note. Descriptive values are from Study 1.

Dependence, reflecting irritation with others' deference and reliance (e.g., "It bothers me when a person is dependent on me"). ISC (LM) was labeled Sensitive to Affection, reflecting irritation with others' warmth and familiarity (e.g., "It bothers me when a person acts like we're friends when we don't even know each other"). Finally, ISC (NO) was labeled Sensitive to Attention Seeking, reflecting irritation with others' intrusiveness and exhibitionism (e.g., "It bothers me when a person interrupts"). Internal consistencies for octant scales ranged from .68 to .88. An examination of scale means suggested that antagonism and control bothered people the most, but participants also endorsed being bothered by warmer behaviors (see Figure 2).

As an initial examination of ISC validity, we examined its associations with established IPC-based measures. As a preliminary step, we evaluated the circumplex structure of the IAS, IIP-C, CSIV, and

CSIE using the randomization test. All four established IPC-based measures exhibited good fit to a circumplex model: IAS CI = 1.00; IIP-C CI = .99; CSIV CI = 1.00; and CSIE CI = .85 (all $ps < .001$).

We then correlated the ISC octant scales with each of the other IPC-based instruments' octant scales and summarized these relations using summary circumplex parameters (Gurtman, 1992, 1997; Gurtman & Pincus, 2003).

These structural summary values can be found in Table 1 (scale-level correlations are available from the first author upon request). We first computed an *elevation* coefficient that reflects the overall correlation of ISC scales with those of criterion constructs (IAS, IIP-C, CSIV, and CSIE). This coefficient can be interpreted as representing the degree to which a given ISC scale is associated with the general tendency underlying each of the criterion measures (i.e., interpersonal traits, problems, values, and efficacies, respectively). Of note, an elevation score for traits has limited theoretical importance (e.g., may indicate a response set), whereas for the other interpersonal constructs, elevation is meaningful (e.g., overall interpersonal distress on the IIP-C). Second, we computed an *amplitude* coefficient, which indicates the degree of differentiation (i.e., variance) across correlations between the ISC octant scales with the criterion scales. This value can be interpreted as indicating the specificity of the relation between specific constructs within the criterion measure and a particular type of interpersonal sensitivity. Third, we computed the angular *displacement* of each criterion measure. This coefficient reflects the prominent theme of interpersonal functioning with which particular ISC scales were associated, and it is only interpretable for those scales with sizable amplitudes. Finally, we computed an R^2 coefficient that reflects the degree to which an ISC scale's profile of correlations across octants of the other IPC surfaces conformed to circumplex assumptions (i.e., prototypicality; see Wright, Pincus, Conroy, & Hilsenroth, 2009). This value increases as the pattern of correlations across IPC scales reflects a sine wave. These values are not anticipated to be high (e.g., $> .70$) for variables that do not have specific relations (i.e., meaningful amplitudes and interpretable displacements). However, low R^2 values may indicate interpretive problems in variables that do have specific relations because they suggest that the data do not conform to circumplex assumptions (e.g., exhibiting high correlations with opposing scales).

Table 1
Circumplex Summaries for Associations of Interpersonal Sensitivity Scales With Measures of Interpersonal Traits, Problems, Values, and Efficacies

Interpersonal Sensitivity	Elevation	Amplitude	Displacement (Octant)	R^2
		Interpersonal Traits: IAS		
PA: Control	−.01	.30	10.71° (LM)	.96
BC: Antagonism	−.01	.38	7.05° (LM)	.99
DE: Remoteness	.00	.21	20.48° (LM)	.95
FG: Timidity	.02	.18	68.84° (PA)	.95
HI: Passivity	.01	.14	73.81° (PA)	.79
JK: Dependence	.03	.16	152.05° (BC)	.93
LM: Affection	.04	.17	178.04° (DE)	.98
NO: Attention seeking	.00	.13	23.82° (NO)	.90
		Interpersonal Problems: IIP-C		
PA: Control	−.06	.06	321.89° (JK)	.70
BC: Antagonism	−.05	.13	335.97° (JK)	.92
DE: Remoteness	.05	.11	4.73° (LM)	.92
FG: Timidity	.01	.10	60.85° (NO)	.99
HI: Passivity	−.02	.10	94.06° (PA)	.90
JK: Dependence	.03	.10	118.65° (BC)	.96
LM: Affection	.10	.09	142.36° (BC)	.93
NO: Attention seeking	.00	.02	14.51° (LM)	.32
		Interpersonal Values: CSIV		
PA: Control	.24	.25	22.79° (NO)	.89
BC: Antagonism	.26	.31	9.51° (LM)	.94
DE: Remoteness	.31	.20	6.10° (LM)	.97
FG: Timidity	.25	.10	51.00° (NO)	.97
HI: Passivity	.18	.14	78.85° (PA)	.94
JK: Dependence	.11	.14	140.31° (BC)	.98
LM: Affection	.09	.17	158.72° (DE)	.94
NO: Attention seeking	.23	.11	43.93° (NO)	.81
		Interpersonal Efficacies: CSIE		
PA: Control	.20	.12	351.85° (LM)	.87
BC: Antagonism	.17	.17	344.21° (LM)	.94
DE: Remoteness	.12	.09	9.47° (LM)	.88
FG: Timidity	.14	.13	76.46° (PA)	.93
HI: Passivity	.16	.14	91.24° (PA)	.89
JK: Dependence	.08	.12	127.58° (BC)	.97
LM: Affection	.00	.11	149.39° (BC)	.94
NO: Attention seeking	.11	.05	40.74° (NO)	.56

Note. $N = 1{,}336$. IAS = Interpersonal Adjective Scales; IIP-C = Inventory of Interpersonal Problems Circumplex; CSIV = Circumplex Scales of Interpersonal Values; CSIE = Circumplex Scales of Interpersonal Efficacy.

Given that we only considered interpersonal scales as validity criteria in Study 1, it is not surprising that all projections but two (IIP-C and CSIE Attention-Seeking) had R^2 values greater than .70. It is notable that across the four IPC measures, ISC scale elevations were associated most strongly with the interpersonal values (CSIV), followed by interpersonal efficacies (CSIE). By contrast, elevations were quite small for interpersonal traits (IAS) and problems (IIP-C). Given the limited meaning of IAS elevations, this result was anticipated and is of limited interest. However, these results indicate strong discriminant validity for our model of interpersonal sensitivities in that sensitivity to particular behaviors by others was not strongly related to subjective distress about one's own behaviors. In other words, ISC interpersonal sensitivity is not the same as IIP-C interpersonal distress.

Associations between the ISC octant scales and those of interpersonal dispositions were quite consistent across dispositional measures. Of the disagreements in location that occurred, most differed by a single adjacent octant and they often involved the location of ISC scales on the IIP-C space relative to the other three dispositional measures. Sensitivities to control (PA_s; *s* refers to sensitivity), antagonism (BC_s), and remoteness (DE_s) were generally associated with interpersonal traits, values, and efficacy profiles peaking in warm and cooperative dispositions (LM_d/JK_d; *d* refers to disposition). Sensitivities to timidity (FG_s) and passivity (HI_s) were associated with extraversion (NO_d) and dominance (PA_d). Interestingly, sensitivity to attention seeking (NO_s) was also associated with extraversion (NO_d), suggesting that attention seekers (NO_d) are bothered by those who compete for attention (NO_s) and by those who do not respond to them (FG_s, HI_s). However, distinct interpersonal sensitivities were not found for introverted (FG_d) and submissive (HI_d) dispositions, and in fact less interpersonal sensitivity was reported generally by more introverted and submissive respondents. These findings may suggest they lack sufficient agency and communion to be bothered (or express being bothered) by others or that their own avoidance tendencies protect them from experiencing the irritants and interferences from others' behavior. Sensitivities to dependence (JK_s) and affection (LM_s) were associated with dispositional hostility (BC_d) and coldness (DE_d).

These patterns appear to suggest that what generally bothers people most is their interpersonal opposite. For instance, the correlations between the ISC agency vector and the agency vectors of the IAS (– .14),

IIP-C (− .27), CSIV (− .10), and CSIE (− .27) were all negative and statistically significant. This is not consistent with our expectation that others' behavior that is anticomplementary (opposite on communion but similar on agency) would be most bothersome. We used RANDALL to test opposition and anticomplementarity hypotheses directly. Correlational patterns between ISC scales and those of the dispositional measures were compared to their expected patterns given these hypotheses. Of 1,600 correlations for each comparison, 811 were consistent with anticomplementarity for the IIP-C (CI = .02, $p > .05$), 990 for the IAS (CI = .24, $p < .05$), 989 for the CSIV (CI = .24, $p < .05$), and 815 for the CSIE (CI = .02, $p > .05$). Support was stronger for an opposition-based hypothesis: 1,237 correlations were consistent with this hypothesis for the IIP-C (CI = .55, $p < .001$), 1,131 for the IAS (CI = .42, $p < .001$), 1,092 for the CSIV (CI = .37, $p < .01$), and 1,177 for the CSIE (CI = .47, $p < .001$).

These results suggest that links between interpersonal sensitivities and interpersonal dispositions may be more complex. Two associations, each at a pole of the communal axis, exhibited anticomplementary patterns. Warm individuals were most bothered by remoteness in others and cold individuals were most bothered by expressions of affection. As sensitivities move off the communal axis, most associations exhibited acomplementary patterns, which reflect similarity on communion *or* oppositeness on agency but not both (Kiesler, 1983).

Finally, dominant individuals reported they were most bothered by passivity and submissiveness in others, an association reflecting interpersonal complementarity. The most common pattern of association reflected interpersonal opposites, suggesting the possibility that people are more bothered by others to the degree they differ from the self.

STUDY 2: REPLICATING THE STRUCTURE AND TESTING THE CRITERION-RELATED VALIDITY OF THE ISC

Method

Study 2 had two overall goals. First, we sought to replicate the circumplex structure of interpersonal sensitivities in a new sample. Second, we sought to test the criterion-related validity of the scales derived in Study 1 using measures that were not developed from the IPC model but operationalize

constructs that have shown to systematically relate to interpersonal behavior. These included normative personality traits (Ansell & Pincus, 2004) and personality pathology constructs (e.g., Wiggins & Pincus, 1989). We administered the 64-item ISC and the following battery of self-report measures to 299 students, most of whom were White and 194 (65%) of whom were women.

Measures

Big Five Inventory (BFI). The BFI (John & Srivastava, 1999) is a 44-item self-report measure of the Big Five traits: Neuroticism (sample Cronbach's $\alpha = .81$), Extraversion ($\alpha = .84$), Openness ($\alpha = .79$), Agreeableness ($\alpha = .82$), and Conscientiousness ($\alpha = .78$).

Pathological Narcissism Inventory (PNI). The PNI (Pincus et al., 2009) is a 52-item self-report measure with seven scales representing underlying components of pathological narcissism, including contingent self-esteem ($\alpha = .91$), exploitativeness ($\alpha = .73$), self-sacrificing self-enhancement ($\alpha = .73$), hiding the self ($\alpha = .78$), grandiose fantasy ($\alpha = .84$), devaluing ($\alpha = .80$), and entitlement rage ($\alpha = .80$). Prior research suggests the PNI exhibits gender invariance (Wright, Lukowitsky, Pincus, & Conroy, in press) and several of the scales have specific relations with interpersonal functioning (Pincus et al., 2009; Wright, Pincus, & Conroy, 2010).

Three Vector Dependency Inventory (3VDI). The 3VDI (Pincus & Wilson, 2001) is a 27-item self-report measure of variants of dependent personality features including love ($\alpha = .76$), exploitable ($\alpha = .79$), and submissive ($\alpha = .81$) dependency. Previous research shows that 3VDI scales project onto the warm-submissive quadrant of IPC measures (Pincus & Gurtman, 1995).

Personality Assessment Inventory (PAI). The PAI (Morey, 1991) is a 344-item self-report measure of response sets and personality and psychopathology constructs. Five scales were used in this study. The Infrequency (INF) and Inconsistency (ICN) scales were used to identify data that may have been invalid due to participant inattention or carelessness. Three others were indicators of pathological personality constructs with previously established relations to cold and dominant interpersonal behavior: paranoid (PAR, 24 items, $\alpha = .85$); antisocial (ANT, 24 items, $\alpha = .86$); and aggressive (AGG, 24 items, $\alpha = .88$). Finally, we selected two scales that we anticipated to relate to a general propensity to be interpersonally sensitive but not to specific interpersonal sensitivities: obsessive-compulsive (ARD-O, eight items, $\alpha = .62$) and irritability (MAN-I, eight items, $\alpha = .70$).

Analyses

We used RANDALL to test the circumplex structure of the ISC items. We then computed internal consistencies of ISC octant scales in this new sample. Next, we projected criterion indicators onto the ISC and computed structural summary parameters to test specific hypotheses. Note that this procedure is unlike that of Study 1, in which we projected ISC scales onto the surfaces of other established IPC measures. This procedure was implemented in Study 1 because we were most interested in testing the newly developed ISC scales against previously validated IPC instruments; but this approach is not possible in Study 2 because the criterion measures do not conform to the IPC.

We had several hypotheses regarding how criterion scales would project onto the ISC. We expected several scales to have a stronger elevation than amplitude parameter, which would indicate a general as opposed to specific relation with interpersonal sensitivities. First, we expected more neurotic people to be more interpersonally sensitive in general, as Neuroticism tends to confer a broad susceptibility to anxiety and negative emotions that are likely to manifest in interpersonal situations. Second, we expected conscientious people to be more interpersonally sensitive as well, given that Conscientiousness is linked to a need for order and attention to detail, characteristics that might enhance one's sensitivity and attention to others' potentially aversive behaviors. We anticipated that PNI entitlement rage and contingent self-esteem would also imply generalized interpersonal sensitivity, as both constructs imply attention to the interpersonal responses of others. Finally, we expected more irritable and obsessive-compulsive people to be generally sensitive to others' behavior but not to have specific sensitivities.

For several other scales, we anticipated stronger amplitudes than elevations, a pattern that would suggest a specific association of a given construct with sensitivity to a particular kind of aversive interpersonal behavior. These included (a) Extraversion and Agreeableness, which have demonstrated specific IPC projections in previous research (e.g., McCrae & Costa, 1989); (b) four elements of pathological narcissism, which, based on previous research, item content, and scale descriptions appear to have specific interpersonal "flavors," specifically exploitativeness, self-sacrificing self-enhancement, hiding the self, and devaluing; (c) the 3VDI scales for dependency, which have exhibited friendly-submissive interpersonal projections in prior research; and (d) the hostile-dominant PAI paranoid, antisocial, and aggressive personality features.

Although we regarded the direction (i.e., angular displacement) of these projections as quite important for understanding the impact of personality variables on interpersonal sensitivity, we did not make

directional predictions given that reasons exist to make incompatible predictions. For instance, following the principle of complementarity, it could be argued that any behavior that represents an anticomplement (i.e., is opposite on communion and similar on agency) should be associated with greater sensitivity. To illustrate, agreeable people tend to be warm and submissive, so we might expect that they would be most sensitive to cold and submissive people. This is because their motives to be both deferent and to be communal would not be satisfied by interactions with cold and submissive people (Horowitz et al., 2006). However, results from Study 1 suggest that opposite patterns tend to emerge such that others are more aversive to the extent that they are more interpersonally opposite from the self. From this perspective, we would expect Agreeableness to project onto the cold and dominant quadrant of the ISC, indicating that agreeable people are most sensitive to others who are cold and dominant, not cold and submissive. Therefore, we sought to explore the associations of known interpersonally relevant constructs to specific individual differences in interpersonal sensitivities. Given their limited conceptual relations with either general or specific interpersonal sensitivities, we did not expect Openness to Experience or PNI grandiose fantasy to have substantial elevation or amplitude parameters.

Results and Discussion

Of the 299 original participants, 15 were removed because they had not answered $>3\%$ of all items, and 38 were removed because their scores on INF or ICN exceeded empirically established cut scores for detecting random responding (74 and 73T, respectively; Morey, 2007), leaving 246 participants whose data were considered further. The randomization test indicated that 266 of 288 hypothesized predictions were met, yielding a CI of .85 ($p<.001$), again confirming the adequacy of the ISC structure. The internal consistencies of ISC scales ranged from .66 to .86 ($Mdn=.81$). We concluded that the structure and reliability of ISC scales were replicated.

Projections of criterion scales onto the ISC are given in Table 2. Unfortunately, no benchmarks exist for comparing elevation and amplitude parameters. Rather than simply comparing these parameters in terms of absolute magnitude, we chose to use a magnitude of .05 representing the difference in elevation and amplitude as an a priori benchmark for determining a meaningful difference. Using this value, most of our predictions regarding the relative specificity (greater

Table 2
Interpersonal Sensitivities Circumplex Structural Summary Parameters for Projections of Criterion Measures in Study 2

Variable	Elevation	Amplitude	Displacement (Octant)	R^2
BFI				
Extraversion	.12	.12	223.14° (FG)	.89
Agreeableness	−.05	.32	144.88° (BC)	.98
Conscientiousness	.14	.12	137.42° (BC)	.49
Neuroticism	.11	.07	127.31° (BC)	.70
Openness	.01	.01	283.31° (HI)	.03
PNI				
Contingent self-esteem	.09	.04	90.80° (PA)	.98
Exploitativeness	.01	.12	327.28° (JK)	.46
Self-sacrificing self-enhancement	.02	.19	129.05° (BC)	.95
Hiding the self	.12	.13	16.02° (LM)	.85
Grandiose fantasy	.09	.04	76.07° (PA)	.76
Devaluing	.12	.13	339.80° (LM)	.31
Entitlement rage	.21	.02	26.45° (NO)	.79
3VDI				
Love dependency	.03	.28	132.79° (BC)	.98
Exploitable dependency	−.05	.13	117.46° (BC)	.59
Submissive dependency	.11	.34	146.59° (BC)	.98
PAI				
Antisocial features	−.04	.16	332.35° (JK)	.85
Paranoid features	.02	.17	337.57° (LM)	.85
Aggression	.06	.17	328.43° (JK)	.97
Obsessive-compulsive	.19	.09	107.78° (PA)	.49
Irritability	.23	.04	36.61° (NO)	.13

Note. $N = 246$. BFI = Big Five Inventory; PNI = Pathological Narcissism Inventory; 3VDI = Three Vectors of Dependency Inventory; PAI = Personality Assessment Inventory.

amplitude) or generality (greater elevation) of the associations between constructs and interpersonal sensitivity were met. As expected, PNI contingent self-esteem and entitlement rage and PAI obsessive-compulsive and irritability scales all had elevation parameters .05 or more than their amplitudes. However, we also predicted this pattern for BFI Conscientiousness and Neuroticism, but both of these variables had similar elevation and amplitude magnitudes.

Consistent with our predictions, BFI Agreeableness; PNI exploitativeness and self-sacrificing self-enhancement; 3VDI love, exploitable, and submissive dependency; and PAI antisocial, paranoid, and aggressive features all had amplitudes more than .05 greater than their elevations. All of these associations except for PNI exploitativeness and 3VDI exploitable dependency had R^2 values greater than .70, supporting the interpretability of these amplitude coefficients. Thus, overall, the ISC appears to be capable of differentiating those constructs theoretically relating to generalized, nonspecific interpersonal sensitivity (i.e., irritability, obsessive-compulsive personality, and narcissistic contingent self-esteem and entitlement rage) from constructs that relate to specific kinds of interpersonal sensitivities (i.e., Agreeableness, self-sacrificing self-enhancement, devaluing, dependency, and antisocial, paranoid, and aggressive personality features).

Displacement values were largely consistent with results from Study 1 in suggesting that people tend to be most interpersonally sensitive to their behavioral opposites. For instance, Agreeableness projected onto the cold and dominant quadrant of the ISC. This suggests that warm and submissive individuals are most sensitive to others' cold and dominant behavior. In contrast, antisocial people, who tend to be cold and dominant, tend to be most sensitive to others' warm and submissive behavior. This pattern held consistently for the other variables that had specific projections onto the ISC surface.

These results build upon Study 1 in offering interesting and somewhat unexpected insights into the nature of interpersonal sensitivities. The interpersonal principle of complementarity would suggest that people should tend to find others' behavior most aversive if it is anticomplementary to their own interpersonal styles. However, in both Studies 1 and 2, we consistently observed that individuals tended to rate behaviors that were opposite to their own styles, not anticomplementary, as most aversive. However, two potential limitations in the methods used in Studies 1 and 2 for the assessment of interpersonal sensitivities may have contributed to these unexpected results. First, our instructions did not clarify that individuals should rate their sensitivities to the enactment of actual behaviors in relation to the respondent. Thus, it is possible that, when asked to describe what is bothersome about others, individuals may not have contextualized this question with specific interpersonal interactions. Instead, they could have rated others in terms of the degree to which they manifest similar or different personal values. For instance,

dominant others may not irritate dominant people because they identify with the other person's agency and assertiveness, even if in closer interactions two dominant people may tend to engage in mutually dissatisfying power struggles. Second, our instructions did not clarify the kind of relationship that should be assessed. Sensitivities and other patterns of interpersonal behavior may be partly a function of social context (Carson, 1969; Moskowitz et al., 2007). Thus, what bothers people in close as opposed to casual or more formal relationships may differ. Therefore, in the third study, we instructed participants to rate interpersonal sensitivities when acting face-to-face and across different relationship roles.

STUDY 3: THE INFLUENCE OF RELATIONSHIP CONTEXT ON INTERPERSONAL SENSITIVITIES

Study 3 was designed to test the potential impact of relationship context on the structure, levels, and criterion associations of interpersonal sensitivities. We added a clause to the ISC instructions asking participants to rate what bothers them "in face-to-face interactions." We asked 315 college students to complete the measure with respect to three different contexts: interactions with acquaintances, friends, and romantic partners. The order of administration across these contexts was randomized, but all three versions of the ISC were always administered before other measures. We also administered the PAI INF scale to detect invalid responding. Of the original 315 participants, 56 individuals were removed for having more than 20 missing items and 9 were removed for being above the INF cut-off, leaving an N of 250. Of these 250, 192 (76.8%) were between the ages of 18–20, 181 (72.4%) were women, and most were White. We administered the CSIV, IAS (both are described in Study 1), and PNI (described in Study 2). We compared the means of ISC scales within subjects and across relationship contexts. To facilitate interpretations, we standardized these values using Study 1 data. We also compared the associations of ISC scales with other measures across relationship context by comparing the correlations of criterion measures with the two vector scores, Dominance (DOM) and Love (LOV), of the ISC. These vectors are conceptually equivalent to the rotated second and third components that were derived in the PCA of the ISC items in Study 1 (or the first two factors in the

ipsatized PCA) and represent the two orthogonal factors that structure the IPC, agency and communion. Given the exploratory nature of these analyses, no formal hypotheses were made.

Results and Discussion

The Cronbach's alphas for the ISC scales ranged from .76 to .90 ($Mdn = .86$) in ratings of friends, .71 to .93 ($Mdn = .85$) in romantic partners, and .75 to .90 ($Mdn = .87$) in acquaintances. Randomization tests showed that the circumplex structure was acceptable for all three versions of the ISC (friends, 281/288 hypothesized orderings met, CI = .95, $p < .001$; romantic partners, 283/288, CI = .97, $p < .001$; acquaintances, 276/288, CI = .92, $p < .001$).

Table 3 shows mean differences in interpersonal sensitivities across contexts, and between context-specific and context-general versions of the ISC. These differences can be described in terms of an overall theme involving relationship closeness. Overall sensitivities tend to be stronger to the extent that relationships are closer. The mean ISC octant scale scores, standardized using the Study 1 data, were −.08 for acquaintances, .05 for friends, and .22 for romantic partners. This

Table 3
Interpersonal Sensitivities With Acquaintances, Friends, and Romantic Partners

Interpersonal Sensitivity	Acquaintances		Friends		Romantic Partners	
	Mean	*SD*	Mean	*SD*	Mean	*SD*
PA: Control	−.19	1.11	−.16	0.93	−.10	0.97
BC: Antagonism	−.21	1.06	.13	0.95	.40	1.04
DE: Remoteness	−.56	1.05	.20	0.94	.78	0.99
FG: Timidity	.17	1.06	.29	0.96	.71	0.96
HI: Passivity	−.18	1.09	.09	0.95	.49	0.97
JK: Dependence	.08	1.14	.07	1.11	.21	1.11
LM: Affection	.60	1.27	.15	1.13	−.09	1.07
NO: Attention seeking	−.33	1.00	−.41	0.93	−.61	0.91

Note. $N = 250$. These data are represented as z scores using Study 1 data as the normative sample to show differences across instruction sets within Study 3 and across studies.

difference was strongest on the communal axis of the ISC, as individuals rated their sensitivity to affection from acquaintances as relatively high (.60), whereas they rated their sensitivity to remoteness from romantic partners (.78) and friends (.20) as relatively high.

Table 4 shows intercorrelations of the ISC Dominance (DOM) and Love (LOV) vector scores with one another and with criterion measures across relationship contexts. The correlations of ISC vectors with one another across conditions show that participants do have

Table 4
Correlations of Interpersonal Sensitivity Dominance and Love Vectors in Ratings of Friends, Romantic Partners, and Acquaintances With One Another and Selected Outcome Measures

	Acquaintances		Friends		Romantic Partners	
	DOM	LOV	DOM	LOV	DOM	LOV
ISC: Friends						
DOM	.66	−.01				
LOV	−.21	.43				
ISC: Romantic Partners						
DOM	.52	−.18	.69	−.26		
LOV	−.22	.21	−.28	.61		
CSIV						
DOM	−.24	−.03	−.23	.14	−.17	.09
LOV	.24	−.28	.27	−.42	.31	−.38
IAS						
DOM	−.26	−.22	−.29	.06	−.25	−.05
LOV	.22	−.30	.20	−.33	.27	−.34
PNI						
Contingent self-esteem	.15	.16	.10	−.05	−.02	−.10
Exploitativeness	−.05	−.05	−.02	.01	−.07	−.13
Self-sacrificing self-enhancement	.13	−.07	.19	−.25	.16	−.34
Hiding the self	.19	.14	.16	−.08	.09	−.09
Grandiose fantasy	.21	−.03	.18	−.19	−.08	−.04
Devaluing	−.12	.13	−.09	.17	−.11	.09
Entitlement rage	−.04	.13	−.03	.02	−.09	−.08

Note. $N = 250$. DOM = dominance vector; LOV = love vector; ISC = interpersonal sensitivities circumplex; CSIV = Circumplex Scales of Interpersonal Values; IAS = Interpersonal Adjective Scales; PNI = Pathological Narcissism Inventory.

somewhat varying sensitivities depending on the relational context. Although DOM and LOV scores consistently correlated more strongly with themselves than the other, within and across contexts, the within-vector correlations for LOV were somewhat stronger across romantic and friend ratings (.61) than romantic-acquaintance (.21; $t_{(247)} = 7.34$, $p < .001$) or friend-acquaintance (.43; $t_{(247)} = 2.90$, $p < .01$) ratings. Thus, the communal dimension again emerged as important for distinguishing sensitivities across relational contexts.

For all three relational contexts, the correlations of ISC DOM with the DOM vectors of interpersonal values and trait measures were uniformly negative (range = $-.17$ to $-.29$), consistent with the pattern of opposites observed in Studies 1 and 2. Relations of the ISC LOV vector with the LOV vectors of other interpersonal circumplex measures were also similar across relational contexts. Overall, there were very few differences as a function of relationship status. The only variable for which values differed even modestly (i.e., $> |.15|$) across conditions involved PNI self-sacrificing self-enhancement (SSSE) and ISC LOV. This pattern suggested that sensitivity to remoteness is stronger for people with high SSSE scores when interacting with friends or relational partners than when interacting with acquaintances.

GENERAL DISCUSSION

This series of studies was designed to fill a gap in the literature on personality and social behavior by developing a general model of interpersonal sensitivities linked to a well-developed theory of interpersonal behavior. Study 1 showed that interpersonal sensitivities can be arrayed about the interpersonal circumplex (IPC). This finding links the assessment of sensitivities to a broad network of other measures and theoretical concepts and facilitates research in the area of sensitivity to aversive behavior. Study 2 showed that the circumplex structure of interpersonal sensitivities held in a replication sample. It also showed that interpersonal sensitivities meaningfully and systematically relate to normative and pathological personality characteristics. Study 3 showed that the circumplex structure holds across relational contexts, and that these contexts do not tend to influence the correlates of interpersonal sensitivities. All three studies suggest that what people find most aversive are their interpersonal opposites and not their interpersonal anticomplements. Overall, these studies offer new insights

into interpersonal behavior and provide a powerful new method for further research on interpersonal sensitivities.

One important new insight involves the variability of potentially aversive interpersonal behavior in terms of interpersonal content. Conceptualizing interpersonal sensitivities using the IPC builds upon the social allergens framework for understanding aversive behaviors in terms of their motivation by providing a model for understanding sensitivities to aversive behavior according to content. Notably, in qualitative ratings from a previous study (reported by O'Connor, 2007), overtly friendly behaviors by others were often experienced as hostile, suggesting that it may not be the content of the overt behavior but rather the underlying interpersonal intent that is important (Coyne, 1976; Katz & Joiner, 2001; Kiesler, Schmidt, & Wagner, 1997). Thus, systems that combine content-based and motivation-based strategies for understanding aversive behaviors and interpersonal sensitivities may be a helpful way forward in understanding these dynamic social processes (Henderson & Horowitz, 2006; Horowitz et al., 2006).

However, we believe there are also distinct advantages to a content-based model. For instance, having conceptualized interpersonal sensitivities with the IPC, we were able to show that warm behaviors can be aversive, despite previous research suggesting that most aversive behaviors tend to be cold (Hatcher & Rogers, 2009; O'Connor, 2007). This is consistent with other interpersonal research suggesting that problematic behavior can be warm (Hopwood, Koonce, & Morey, 2009) and suggests the need to focus research on this understudied area of personality and relationships process. The availability of a large family of IPC measures (Locke, 2006) affords an effective medium through which to study such behavior.

The geometric properties of the IPC also allow for a distinction between those characteristics that are associated with a generalized sensitivity to the aversive impacts of others' behavior from those that are associated with specific interpersonal sensitivities. For instance, consistent with our hypotheses, individuals who have more obsessive-compulsive traits and are more irritable appear to be more sensitive to others' behavior in general. In contrast, agreeable individuals, or those with some forms of dependent, narcissistic, antisocial, aggressive, or paranoid personality pathology, tended to be sensitive to specific kinds of behaviors and typically those that reflect their interpersonal opposites.

The consistent finding that people usually find their interpersonal opposites aversive surprised us because, based on interpersonal theory, we expected that people would tend to find behaviors that are anticomplementary to their own style to be most aversive. Thus, though we expected an opposite pattern on the communal dimension of behavior, we expected, for instance, that more dominant people would tend to find others' dominant behaviors most aversive. However, whether using IPC measures or personality and psychopathology constructs with previously established relations to the IPC, and regardless of the interpersonal context, we generally found that behavior that is opposite to the rater's dispositions on both communion and agency was rated as most aversive. Notably, research in other traditions has also found that people are bothered by their opposites (Berscheid & Reis, 1998; Byrne, 1971; Rosenbaum, 1986). These prior results and those from the current series of studies suggest the need for further exploration of the interpersonal mechanisms of complementarity.

Finally, interpersonal sensitivities showed limited relations to interpersonal problems, and the relations with several other IPC surfaces (e.g., those measuring values, traits, and efficacies) were stronger than with the IIP-C. One might expect that, in measures of personality and psychopathology, "bad things" such as irritants and distress tend to go together. Based on this expectation, it might be anticipated that people who tend to find more behaviors aversive would also tend to have more interpersonal problems. The disconnection between sensitivities and problems suggests that some people tend to be distressed about their own interpersonal difficulties, whereas for others, the source of their distress resides in others. This distinction harkens back to Rotter's (1966) concept of locus of control or to the psychoanalytic distinction between ego-syntonic and ego-dystonic difficulties. It may suggest that individuals can have problems in either direction and that these problems are not tightly linked. Given the broad network of established relations of problems in living with the IIP-C, this also suggests that interpersonal sensitivities are an understudied but important aspect of social functioning. We anticipate that various difficulties in living may relate to different patterns of interpersonal problems and sensitivities, but this general expectation must be addressed in future research. Again, the availability of the ISC complements the use of the IIP-C and should promote and enhance such investigations.

Several methodological limitations may have affected study findings. First, because all of our studies employed self-report methods, it is possible that patterns observed in these studies would not emerge in experimental research. For instance, individuals may have a cognitive set involving their own interpersonal style as "good" and thus other styles as "bad." Because of this set, they may fail to realize that, in fact, anticomplementary behaviors (e.g., similar behaviors on the agentic axis of the IPC) are aversive. In addition, some previous research suggests that complementarity at the behavioral level does not necessarily extend to the global level of relationships (e.g., Tracey, 2005). For these reasons, experimental research using other measurement methods, such as psychophysiological recording, is needed to test the degree to which anticomplementary behavior is experienced as aversive. These issues should also be studied in other kinds of samples. Future investigations would benefit from using the IPC in general, and the ISC in particular, to conceptualize interpersonal sensitivities.

Overall, this research provides a model and a method that can be used to investigate broader issues, such as the origins and course of interpersonal sensitivities and the role of interpersonal sensitivities in social behavior, psychopathology, and quality of life. We will speak to just two of many such possibilities here, involving temporal dynamics of interpersonal behavior and the interpersonal context of psychopathology.

As discussed earlier, previous research on interpersonal sensitivities has primarily occurred in the context of close romantic relationships. In this context, an interesting pattern has been identified in which individuals begin relationships with starry eyes that cloud perceptions of partners' behaviors that may be aversive. As the stars fade and partners become more comfortable showing the more bothersome aspects of themselves, these aversions start to take hold and become progressively more irritating over time. It is unclear whether such a pattern would describe all relationships. There are reasons to believe that it would not—for example, in contexts where there is no starry-eyed beginning or in relationships that cannot so easily end. Longitudinal research employing the general model of interpersonal sensitivities presented here should be conducted in different kinds of relationships in order to describe the temporal progression of aversive behavior and sensitivities beyond those in romantic relationships.

Another burgeoning area of recent research shows that interpersonal heterogeneity among individuals with the same psychiatric

disorders, a concept referred to as interpersonal pathoplasticity (Cain et al., 2010; Pincus et al., 2010; Pincus & Wright, 2010). The demonstration of this effect for several disorders suggests the need for a model of why people with the same disorders might express their psychopathology differently. We believe that one reason for these different expressions involves the fact that the same symptoms may be provoked by different interpersonal antecedents. For instance, among two individuals with generalized anxiety disorder, a warm person might become anxious if his or her partner cancels a date, whereas a cold person might become anxious if his or her partner schedules one. Thus, differences in symptomatic provocations may lie in varying sensitivities to others' behavior, as can be economically described with the ISC. We are optimistic that considering interpersonal sensitivities in future clinical research will yield important insights into the dynamic relation between social behavior and psychopathology.

In conclusion, interpersonal sensitivities can be conceptualized as involving a broad array of interpersonal behaviors. Linking research on aversive behavior and interpersonal sensitivity to the interpersonal circumplex is likely to enhance future research on interpersonal sensitivities and interpersonal theory more generally. This research specifically showed that interpersonal sensitivities are not strongly linked to interpersonal problems, that generalized sensitivities can be distinguished from specific ones, and that people report being most bothered by others' interpersonal behavior when it is least like their own. This work paves a number of avenues for future research that would be facilitated by the general model of interpersonal sensitivities developed here.

REFERENCES

Acton, G. S., & Revelle, W. (2002). Interpersonal personality measures show circumplex structure based on new psychometric criteria. *Journal of Personality Assessment*, **79**, 456–481.

Alden, L. E., Wiggins, J. S., & Pincus, A. L. (1990). Construction of circumplex scales for the inventory of interpersonal problems. *Journal of Personality Assessment*, **55**, 521–536.

Ambwani, S., & Hopwood, C. J. (2009). The utility of considering interpersonal problems in the assessment of bulimic features. *Eating Behaviors*, **10**, 247–253.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Ansell, E. B., & Pincus, A. L. (2004). Interpersonal perceptions of the five-factor model of personality: An examination using the structural summary method for circumplex data. *Multivariate Behavioral Research*, **39**, 167–201.

Ansell, E. B., Pinto, A., Crosby, R. D., Becker, D. F., Añez, L. M., Paris, M., et al. (2010). The prevalence and structure of obsessive-compulsive personality disorder in Hispanic psychiatric outpatients. *Journal of Behavior Therapy and Experimental Psychiatry*, **41**, 275–281.

Ansell, E. B., Pinto, A., Edelen, M. O., & Grilo, C. M. (2008). The structure of DSM-IV obsessive-compulsive personality disorder in a binge eating disorder sample. *Canadian Journal of Psychiatry*, **53**, 863–867.

Bakan, D. (1966). *The duality of human existence: Isolation and communion in Western man*. Boston: Beacan Press.

Bancila, D., & Mittelmark, M. B. (2009). Measuring interpersonal stress with the Bergen Social Relationships Scale: Psychometric properties in studies in Norway, Romania, and Russia. *European Journal of Psychological Assessment*, **25**, 260–265.

Berscheid, E., & Reis, H. T. (1998). Attraction and close relationships. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., pp. 193–281). New York: McGraw-Hill.

Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.

Cain, N. M., Pincus, A. L., & Grosse-Holtforth, M. (2010). Interpersonal subtypes in social phobia: Diagnostic and treatment implications. *Journal of Personality Assessment*, **92**, 514–527.

Carson, R. C. (1969). *Interaction concepts of personality*. Chicago: Aldine.

Coyne, J. C. (1976). Depression and the response of others. *Journal of Abnormal Psychology*, **85**, 186–193.

Cunningham, M. R., Barbee, A. P., & Druen, P. B. (1997). Social allergens and reactions they produce: Escalation of love and annoyance in love and work. In R. M. Kowalski (Ed.), *Aversive interpersonal behaviors* (pp. 189–214). New York: Plenum Press.

Cunningham, M. R., Shamblen, S. R., Barbee, A. P., & Ault, L. K. (2005). Social allergies in romantic relationships: Behavioral repetition, emotional sensitization, and dissatisfaction in dating couples. *Personal Relationships*, **12**, 273–295.

Denson, T. F., Spanovic, M., & Miller, N. (2009). Cognitive appraisals and emotions predict cortisol and immune responses: A meta-analysis of acute laboratory social stressors and emotion reductions. *Psychological Bulletin*, **135**, 823–853.

Felmlee, D. H. (1995). Fatal attractions: Affection and disaffection in intimate relationships. *Journal of Social and Personal Relationships*, **12**, 295–311.

Felmlee, D. H. (2001). From appealing to appalling: Disenchantment with a romantic partner. *Sociological Perspectives*, **44**, 263–280.

Gurtman, M. B. (1992). Construct validity of interpersonal personality measures: The interpersonal circumplex as a nomological net. *Journal of Personality and Social Psychology*, **63**, 105–118.

Gurtman, M. B. (1997). Studying personality traits: The circular way. In R. Plutchik & H. R. Conte (Eds.), *Circumplex models of personality and emotion* (pp. 81–102). Washington, DC: American Psychological Association.

Gurtman, M. B., & Balakrishnan, J. D. (1998). Circular measurement redux: The analysis and interpretation of interpersonal circle profiles. *Clinical Psychology: Science and Practice*, **5**, 344–360.

Gurtman, M. B., & Pincus, A. L. (2000). Interpersonal Adjective Scales: Confirmation of circumplex structure from multiple perspectives. *Personality and Social Psychology Bulletin*, **26**, 374–384.

Gurtman, M. B., & Pincus, A. L. (2003). The circumplex model: Methods and research applications. In J. Schinka & W. Velicer (Eds.), *Comprehensive handbook of psychology, Vol. 2: Research methods in psychology* (pp. 407–428). New York: Wiley.

Harris, K. J., Harvey, P., & Kacmar, K. M. (2009). Do social stressors impact everyone equally? An examination of the moderating impact of core self-evaluations. *Journal of Business and Psychology*, **24**, 153–164.

Hatcher, R. L., & Rogers, D. T. (2009). Development and validation of a measure of interpersonal strengths: The Inventory of Interpersonal Strengths. *Psychological Assessment*, **21**, 554–569.

Henderson, L., & Horowitz, L. M. (2006, June) *Social allergens and frustrated interpersonal motives*. Paper presented at the Society for Interpersonal Theory and Research, Philadelphia, PA.

Hopwood, C. J., Koonce, E. A., & Morey, L. C. (2009). An exploratory study of integrative personality pathology systems and the interpersonal circumplex. *Journal of Psychopathology and Behavioral Assessment*, **31**, 331–339.

Horowitz, L. M., Wilson, K. R., Turan, B., Zolotsev, P., Constantino, M. J., & Henderson, L. (2006). How interpersonal motives clarify the meaning of interpersonal behavior: A revised circumplex model. *Personality and Social Psychology Review*, **10**, 67–86.

Hubert, L. J., & Arabie, P. (1987). Evaluating order hypotheses within proximity matrices. *Psychological Bulletin*, **102**, 172–178.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). New York: Guilford Press.

Katz, J., & Joiner, T. E., Jr. (2001). The aversive interpersonal context of depression: Emerging perspectives on depressotypic behavior. In R. M. Kowalski (Ed.), *Behaving badly: Aversive behaviors in interpersonal relationships* (pp. 117–147). Washington, DC: American Psychological Association.

Kiesler, D. J. (1983). The 1982 interpersonal circle: A taxonomy for complementarity in human transactions. *Psychological Review*, **90**, 185–214.

Kiesler, D. J. (1996). *Contemporary interpersonal theory and research: Personality, psychopathology, and psychotherapy*. New York: John Wiley & Sons.

Kiesler, D. J., Schmidt, J. A., & Wagner, C. C. (1997). A circumplex inventory of impact messages: An operational bridge between emotion and interpersonal behavior. In R. Plutchik & H. Contes (Eds.), *Circumplex models of personality and emotions* (pp. 221–244). Washington, DC: American Psychological Association.

Kowalski, R. M. (1997). *Aversive interpersonal behaviors*. New York: Plenum Press.

Kowalski, R. M. (2001). *Behaving badly: Aversive behaviors in interpersonal relationships*. Washington, DC: American Psychological Association.

Leary, M. R., & Kowalski, R. M. (1993). The Interaction Anxiousness Scale: Construct and criterion-related validity. *Journal of Personality Assessment*, **61**, 136–146.

Leary, T. (1957). *Interpersonal diagnosis of personality*. New York: Ronald Press.

Locke, K. D. (2000). Circumplex scales of interpersonal values: Reliability, validity, and applicability to interpersonal problems and personality disorders. *Journal of Personality Assessment*, **75**, 249–267.

Locke, K. D. (2003). Status and solidarity in social comparison: Agentic and communal values and vertical and horizontal directions. *Journal of Personality and Social Psychology*, **84**, 619–631.

Locke, K. D. (2006). Interpersonal circumplex measures. In S. Strack (Ed.), *Differentiating normal and abnormal personality* (2nd ed., pp. 383–400). New York: Springer.

Locke, K. D., & Christensen, L. (2007). Re-construing the relational self-construal and its relationship with self-consistency. *Journal of Research in Personality*, **41**, 389–402.

Locke, K. D., & Sadler, P. (2007). Self-efficacy, values, and complementarity in dyadic interactions: Integrating interpersonal and social-cognitive theory. *Personality and Social Psychology Bulletin*, **33**, 94–109.

McCrae, R. R., & Costa, P. T., Jr. (1989). The structure of interpersonal traits: Wiggins' circumplex and the five-factor model. *Journal of Personality and Social Psychology*, **56**, 586–595.

Miller, G. E., Rohleder, N., & Cole, S. W. (2009). Chronic interpersonal stress predicts activation of pro- and anti-inflammatory signaling pathways 6 months later. *Psychosomatic Medicine*, **71**, 57–62.

Morey, L. C. (1991). *Personality Assessment Inventory professional manual*. Odessa, FL: Psychological Assessment Resources.

Morey, L. C. (2007). *Personality Assessment Inventory professional manual* (2nd ed.). Lutz, FL: Psychological Assessment Resources.

Moskowitz, D. S., Ho, M. H. R., & Turcotte-Tremblay, A. M. (2007). Contextual influences on interpersonal complementarity. *Personality and Social Psychology Bulletin*, **33**, 1051–1063.

O'Connor, B. (2007). Using social allergens to test concepts from interpersonal theory. *Society for Interpersonal Theory and Research Newsletter*, **7**, 6–7.

Pincus, A. L., Ansell, E. B., Pimentel, C. A., Cain, N. M., Wright, A. G. C., & Levy, K. N. (2009). Initial construction and validation of the Pathological Narcissism Inventory. *Psychological Assessment*, **21**, 365–379.

Pincus, A. L., & Gurtman, M. B. (1995). The three faces of interpersonal dependency: Structural analyses of self-report dependency measures. *Journal of Personality and Social Psychology*, **69**, 744–758.

Pincus, A. L., Lukowitsky, M. R., & Wright, A. G. C. (2010). The interpersonal nexus of personality and psychopathology. In T. Millon, R. F. Krueger, & E. Simonsen (Eds.), *Contemporary Directions in Psychopathology: Scientific Foundations of the DSM-V and ICD-11* (pp. 523–552). New York: Guilford Press.

Pincus, A. L., & Wilson, K. R. (2001). Interpersonal variability in dependent personality. *Journal of Personality*, **69**, 223–252.

Pincus, A. L., & Wright, A. G. C. (2010). Interpersonal diagnosis of psychopathology. In L. M. Horowitz & S. N. Strack (Eds.), *Handbook of interpersonal psychology*. New York: Wiley.

Rosenbaum, M. E. (1986). The repulsion hypothesis: On the nondevelopment of relationships. *Journal of Personality and Social Psychology*, **51**, 1156–1166.

Rotter, J. B. (1966). Generalized expectancies of internal versus external control of reinforcements. *Psychological Monographs*, **80**(609).

Ruiz, M. A., Pincus, A. L., Borkovec, T. D., Echemendia, R. J., Castonguay, L. G., & Ragusea, S. A. (2004). Validity of the Inventory of Interpersonal Problems for predicting treatment outcome: An investigation with the Pennsylvania Practice Research Network. *Journal of Personality Assessment*, **83**, 213–222.

Sadler, P., Ethier, N., Gunn, G. R., Duong, D., & Woody, E. (2009). Are we on the same wavelength? Interpersonal complementarity as shared cyclical patterns during interactions. *Journal of Personality and Social Psychology*, **97**, 1005–1020.

Sadler, P., & Woody, E. (2003). Is who you are who you're talking to? Interpersonal style and complementarity in mixed-sex interactions. *Journal of Personality and Social Psychology*, **84**, 80–95.

Sprecher, S., & Felmlee, D. (1993). Conflict, love, and other relationship dimensions for individuals in dissolving, stable, and growing premarital relationships. *Free Inquiry in Creative Sociology*, **21**, 115–125.

Sprecher, S., & Metts, S. (1999). Romantic beliefs: Their influence on relationships and patterns of change over time. *Journal of Social and Personal Relationships*, **16**, 843–851.

Stroud, L. R., Tanofsky-Kraff, M., Wilfley, D. E., & Salovey, P. (2000). The Yale Interpersonal Stressor (YIPS): Affective, physiological, and behavioral responses to a novel interpersonal rejection paradigm. *Annals of Behavioral Medicine*, **22**, 204–213.

Tracey, T. J. G. (1997). RANDALL: A Microsoft FORTRAN program for a randomization test of hypothesized order relations. *Educational and Psychological Measurement*, **57**, 164–168.

Tracey, T. J. G. (2005). Interpersonal rigidity and complementarity. *Journal of Research in Personality*, **39**, 592–614.

Tracey, T. J. G., Rounds, J., & Gurtman, M. (1996). Examination of the general factor with the interpersonal circumplex structure: Application to the Inventory of Interpersonal Problems. *Multivariate Behavioral Research*, **31**, 441–466.

Vangelisti, A. L., Young, S. L., Carpenter-Theune, K. E., & Alexander, A. L. (2005). Why does it hurt? *Communication Research*, **32**, 443–477.

Wiggins, J. S. (1979). A psychological taxonomy of trait-descriptive terms: The interpersonal domain. *Journal of Personality and Social Psychology*, **37**, 395–412.

Wiggins, J. S. (1991). Agency and communion as conceptual coordinates for the understanding and measurement of interpersonal behavior. In D. Cicchetti & W. M. Grove (Eds.), *Thinking clearly about psychology: Essays in honor of Paul*

E. Meehl, Vol. 2: Personality and psychopathology (pp. 89–113). Minneapolis: University of Minnesota Press.

Wiggins, J. S. (1995). *Interpersonal Adjective Scales: Professional manual*. Odessa, FL: Psychological Assessment Resources.

Wiggins, J. S., & Pincus, A. L. (1989). Conceptions of personality disorders and dimensions of personality. *Psychological Assessment*, **1**, 305–316.

Wiggins, J. S., Steiger, J. H., & Gaelick, L. (1981). Evaluating circumplexity in personality data. *Multivariate Behavioral Research*, **16**, 263–289.

Wiggins, J. S., Trapnell, P., & Phillips, N. (1988). Psychometric and geometric characteristics of the Revised Interpersonal Adjective Scales (IAS-R). *Multivariate Behavioral Research*, **23**, 517–530.

Wright, A. G. C., Lukowitsky, M. R., Pincus, A. L., & Conroy, D. E. (in press). The higher-order factor structure and gender invariance of the Pathological Narcissism Inventory. *Assessment*.

Wright, A. G. C., Pincus, A. L., & Conroy, D. E. (2010, March). *The interpersonal impacts of narcissism*. Paper presented at the symposium on Advances in Assessment of Pathological Narcissism (A. G. C. Wright, Chair), Society for Personality Assessment annual meeting, San Jose, CA.

Wright, A. G. C., Pincus, A. L., Conroy, D. E., & Elliot, A. J. (2009). The pathoplastic relationship between interpersonal problems and fear of failure. *Journal of Personality*, **77**, 997–1024.

Wright, A. G. C., Pincus, A. L., Conroy, D. E., & Hilsenroth, M. J. (2009). Integrating methods to optimize circumplex description and comparison of groups. *Journal of Personality Assessment*, **91**, 311–322.