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Validity of the PAI Interpersonal Scales for Measuring the Dimensions of the Interpersonal Circumplex

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Two studies evaluated the validity of the interpersonal scales, Dominance (DOM) and Warmth (WRM), from the Personality Assessment Inventory (PAI; Morey, 1991, 2007) to measure the 2 dimensions of the interpersonal circumplex (IPC). In Study 1, 114 college freshmen completed the PAI and the Interpersonal Adjectives Scale (IAS; Wiggins, 1995). In Study 2, 170 college students completed the PAI and the Inventory of Interpersonal Problems–Short Circumplex (IIP–SC; Soldz, Budman, Demby, & Merry, 1995). The results of both studies supported the convergent validity of DOM and WRM, although discriminant validity was stronger using the IIP–SC as the criterion. Circumplex projections placed DOM and WRM in the appropriate segments of both the IAS and IIP–SC. These findings provide additional support for the validity of the PAI interpersonal scales as measures of the primary dimensions of the IPC.

The measurement of interpersonal behavior is an important component in the overall assessment of personality and psychopathology. Interpersonal style has implications for social functioning and individual differences that could differentially effect the symptom presentation or manifestation in individuals seeking treatment. For many years others (e.g., Anchin & Pincus, 2010; Critchfield & Benjamin, 2008; Horowitz, 2004; McLemore & Benjamin, 1979; Pincus & Ansell, 2003) have argued that greater attention to interpersonal style in the assessment of psychopathology would enhance understanding of individual patients and the formulation of treatment plans. However, most multiscale inventories used for clinical assessment focus heavily on the internal dispositions of the respondent without including a theoretically based assessment of the individual's interpersonal style. One exception to this trend is the Personality Assessment Inventory (PAI; Morey, 1991, 2007), which includes two scales for the assessment of interpersonal style together with scales measuring psychopathological syndromes and other clinical variables. Although the PAI has been used in a variety of clinical settings and for an assortment of respondent groups, the PAI interpersonal scales have received relatively less attention than the other scales. The purpose of this study is to evaluate the validity of these PAI interpersonal scales using two established measures of interpersonal style and functioning.

According to interpersonal theorists (Carson, 1969; Kiesler, 1983; Leary, 1957; Sullivan, 1953; Wiggins, 1979), individual differences in interpersonal style give rise to social behavior that is generally consistent over time and across situations. According to Sullivan's (1953) interpersonal theory, personality is inextricably linked to interpersonal learning and relating such that the understanding of the self and others is made manifest within the "interpersonal situation." Derived from this theory, Leary (1957) articulated a structural model in which individual differences in interpersonal traits and behaviors can be integrated and understood. These individual differences can manifest in a variety of domains including interpersonal traits (Wiggins, 1979, 1995) and interpersonal problems (Horowitz, Alden, Wiggins, & Pincus, 2000) and are typically conceptualized within a structural model consisting of two dimensions of affiliation, communion, or warmth and agency, control, or dominance (Carson, 1969; Freedman, Leary, Ossorio, & Coffey, 1951; Lorr & McNair, 1965; Moskowitz, Suh, & Desaulniers, 1994; Paddock & Nowicki, 1986; Wiggins, 1979). This model is termed the interpersonal circumplex (IPC). The IPC model depicts a geometric representation of an individual's interpersonal style by placing him or her in the two-dimensional space created by the orthogonal dimensions of warmth and dominance (see Figure 1). An individual's interpersonal style consists of a blend of his or her relative standing on warmth and on dominance, such that a warm and dominant individual might behave in an extraverted manner, whereas a cold but equally dominant individual might behave in a disagreeable manner. Although the metaconstructs within the IPC can be termed communion and agency, different models articulate different representations of the dimensions of the IPC depending on the focus of the assessment measures (e.g., problems vs. motives) and depending on the interpersonal or attachment literature tradition from which the assessment measure is derived (Critchfield & Benjamin, 2008; Horowitz, 2004; Pincus & Ansell, 2003).

Several assessment measures have been developed that assess a variety of interpersonal behaviors, problems, messages, motives, and goals. An important factor in the evaluation of IPC measures is their geometric fit to a circumplex model. Although discriminant validity between the scales is important in establishing the orthogonal nature of the dimensions they represent, each dimension should also demonstrate sensitivity to constructs that are oblique to those dimensions (Pincus, 1994). This circumplex structure maintains that the correlations for the octants should have a defined circular ordering of correlations with decreasing positive values and then increasing negative values around the first 180° of the circle. In a perfect circumplex, octant scales located at 90° from each other are orthogonal, and thus,

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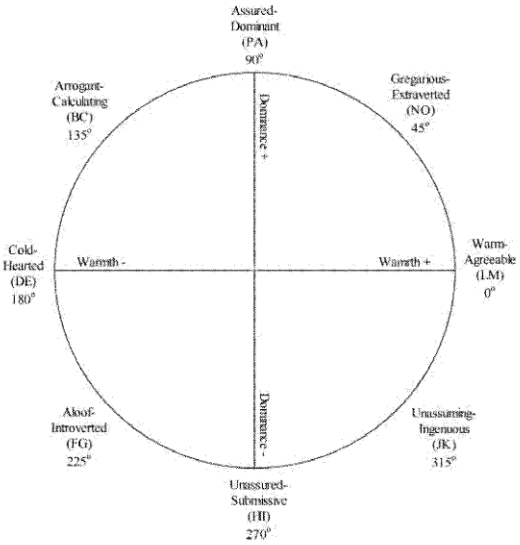

FIGURE 1.—The octants of the Interpersonal Circle (Wiggins, 1995).

should not be correlated. Octant scales located at 180° from each other should have identical but inverse magnitude of correlation. This allows for the accurate assessment of the off-axis blends of the two main dimensions. The PAI (Morey, 1991, 2007) is a self-report inventory of adult personality and psychopathology with several attractive features. The scales of the PAI do not have item overlap, thereby increasing discriminant validity between scales and decreasing the artifactual relationship between scales. The items were written in simple language to reflect the phenomenology of disorders and traits. The final items were selected using both rational and empirical approaches, unlike the highly empirically weighted methodologies of other inventories. Finally, the PAI addressed continued criticisms that multiscale inventories ignore interpersonal behavior by including two interpersonal scales, Dominance (DOM) and Warmth (WRM). These scales were based on the concepts introduced by Leary (1957), Wiggins (1979), and others; they purport to measure the main two dimensions of the IPC. The DOM scale includes items indicating a "forceful, confident, controlling personality, in contrast to a more self-critical, passive, and timid style of relating to others" (Morey, 1991, p. 74). The WRM scale includes items indicating a "sociable, understanding, and agreeable personality style, as opposed to a frank, strict, and critical interpersonal orientation" (p. 74).

The original test manual for the PAI reports good internal reliability for both WRM and DOM, with coefficient alphas ranging from .78 to .83 across the community, clinical, and college normative samples (Morey, 1991). Test–retest correlations over a 4-week interval are reported at .68 for DOM and .77 for WRM. The original validation studies of DOM and WRM examined its correlations with Wiggins's Interpersonal Adjectives Scale (IAS; Wiggins, Trapnell, & Phillips, 1988) in a sample of 85 community adult respondents. DOM correlated .61 with the dominance scores on the IAS and .25 with nurturance scores on the IAS. WRM correlated .65 with the nurturance scores on the IAS and .08 with dominance scores on the IAS. Further evaluation of the validity of DOM and WRM has not kept pace, however, with research on the other PAI scales since its publication. Aside from some unpublished studies presented in the revised test manual (Morey, 2007), the interpersonal scales have not been independently examined for their convergence with established measures of the IPC. This is a potentially serious omission, as these scales are an important part of the newer supplemental scores on the PAI, such as the Treatment Process Index (Morey, 1996, 2003). They are also used in several algorithms designed to make recommendations about specific treatment modalities (Morey, 1996; Morey & Hopwood, 2007). Prediction of treatment response is an important goal of personality assessment, and research on the IPC has demonstrated its relevance to therapeutic alliance and treatment outcome (Borkovec, Newman, Pincus, & Lytle, 2002; Hopwood, Clarke, & Perez, 2007; Huber, Henrich, & Klug, 2007; Horowitz, 2004; Kiesler, 1983, 1996; Ruiz et al., 2004; Stepp et al., 2008). Therefore, validation of the circular structure of the PAI interpersonal scales would support the potential utility of the PAI for studying therapeutic process in the IPC tradition. Moreover, if the PAI scales were found to be equivalent to other established IPC measures, then the PAI could be administered by itself, saving resources and testing time for patients. Studies examining the structural convergence with other interpersonal circumplex measures besides the IAS are also needed. In particular, research using circumplex measures that focus on interpersonal problems relevant to work with patients would provide useful additional information about the clinical value of the PAI interpersonal scales.

Two of the most commonly used measures of the IPC are the IAS (Wiggins, 1995) and the Inventory of Interpersonal Problems–Short Circumplex (IIP–SC; Soldz, Budman, Demby, & Merry, 1995). These two measures differ in their focus on basic interpersonal traits (IAS) versus interpersonal problem behaviors (IIP–SC), but both measures have well-established circumplex structure, are associated with one another, and represent both normal and abnormal interpersonal styles as blends of the warmth and dominance dimensions (Alden, Wiggins, & Pincus, 1990; Gurtman & Pincus, 2000; Hopwood, Pincus, DeMoor, & Koonce, 2008). Accordingly, Study 1 replicates the prior validation work of Morey (1991) by correlating the PAI scales DOM and WRM with the IAS axes. Study 2 extends this research by correlating DOM and WRM with the IIP–SC. Both studies also examine the circular structure of the two PAI scales using the octant scores from the IAS and the IIP–SC.

STUDY 1

Method

Participants. One hundred fourteen normal-age freshmen college students (56 male, 58 female) were recruited to participate in a study of roommate relationships (Ansell, Kurtz, & Markey, 2008). The majority of participants was recruited through introductory psychology courses and received credit toward course requirements in exchange for participation. Eligible students were also contacted through campus mail about the study. Sixty-eight students (60%) received credit toward course requirements in exchange for participation, and 46 students (40%) received $10 compensation for completing the study protocol.

Measures

PAI (Morey, 1991, 2007): The PAI is a 344-item multiscale inventory designed to measure a wide array of clinical constructs. Each item is rated on a 4-point response format labeled *False, Slightly True, Mainly True,* and *Very True.* This study focuses on the two Interpersonal scales, Dominance (DOM) and Warmth (WRM); each of these scales is composed of 12 items that assess the main dimensions of the IPC. Reliability of the DOM and WRM scores in this sample was estimated using coefficient alpha. The obtained values of alpha were .82 for DOM and .73 for WRM; the two scales correlated at $r = .26$. The sample means for DOM and WRM are highly comparable to those of 1,051 respondents in the college normative sample (Cohen's $d = .09$ for DOM and $-.11$ for WRM).

IAS (Wiggins, 1995): The IAS is designed to measure the two dimensions that underlie the interpersonal circle: Dominance and Nurturance. The measure consists of 64 trait adjectives that are rated on an 8-point response format ranging from 1 (*Extremely Inaccurate*) to 8 (*Extremely Accurate*). A glossary is included with the test booklet to clarify the meaning of unusual terms. The 64 items of the IAS provide scores on the eight segments of the IPC; these 8-item subscales are called octant scores. The octant scores are combined in a weighted formula to determine the participant's coordinate position on the two axes of the circumplex. The IAS has been shown to have excellent circumplex structure and to be a valid and reliable measure with college students (Gurtman & Pincus, 2000; Wiggins, 1995; Wiggins et al, 1988). All scores were standardized using same-sex college student norms. Alpha coefficients for the octant scales in this sample ranged from .79 (JK: Unassuming-Ingenuous) to .91 (BC: Arrogant-Calculating).

Procedure. Following informed consent, participants were administered the IAS and the PAI scales. The IAS was completed before the PAI in every case. In addition to self-ratings on these measures, participants completed a series of questionnaires about their roommate and their relationship quality unrelated to this study (see Ansell et al., 2008). On completion of the questionnaires, participants were given a written debriefing statement and compensated with cash or course credit.

Results and Discussion

Scores on the IPC dimensions of warmth and dominance were calculated for the IAS and the PAI scales. Table 1 reports the correlations between the DOM and WRM scores of the PAI and the axis coordinates of the IAS. Convergent validity was assessed by examining the same-axis correlations and discriminant validity was assessed by examining the off-axis correlations. The convergent validity of the PAI interpersonal scales with their respective IAS axis coordinates was supported by large correlations ($r_{dom} = .67$, $r_{wrm} = .62$). Discriminant validity was somewhat compromised by a small correlation between PAI DOM and IAS Warmth ($r = .26$).

TABLE 1.—Correlations and circumplex structural summary parameters between PAI Interpersonal Scales and IAS scores.

	PAI DOM	PAI WRM
IAS axis coordinates		
Dominance	.67*	.09
Nurturance	.26*	.62*
Elevation	.01	.04
Amplitude	.72	.63
Angular displacement	69°	8°

Note. $n = 114$. PAI = Personality Assessment Inventory; DOM = Dominance; WRM = Warmth; IAS = Interpersonal Adjectives Scales.
*$p < .05$.

Next, the IAS DOM and WRM scores were used to compute the amplitude, angular displacement, and the estimated correlations of the eight IAS octants with the PAI interpersonal scales. With an eight-octant circumplex as the criterion, the pattern of correlations between the octant scores and the PAI DOM and WRM scales should take on a sinusoidal form, as illustrated in this formula (Gurtman, 1992):[1]

$$r_i = e + a(\cos(\theta_i - \theta)) \quad (1)$$

where r_i is the expected correlation of the PAI score with octant i, e is the elevation of the curve, a is the amplitude of the curve, θ_i is the angle of octant i, and θ is the angular displacement of the curve.

The elevation of the curve represents the average correlation of a given PAI score with the eight octant scores. A scale with perfect circumplex structure will obtain elevation values near zero (e.g., the decreasing positive, increasing negative, decreasing negative, and then increasing positive correlations with octant scales around the circumplex will average out such that the overall elevation is minimal). The elevation value of .01 for PAI DOM and .04 for PAI WRM presented in Table 1 demonstrate good circumplex structure for both scales with respect to elevation.

The amplitude of the curve represents the highest positive correlation of a PAI score across the eight octant scores, minus the elevation of the curve. Practically, amplitude represents the peakness of the curve or the extent of interpersonal prototypicality or content inherent in the PAI scale. Because the dimensions of dominance and warmth are theoretically orthogonal, it is possible to interpret the amplitude for each PAI score in a manner similar to the multiple R between that score and the IPC axes (Gurtman, 1992). Therefore, the amplitude can also be considered an effect size estimate of the "interpersonalness" of the PAI scales. The amplitude of a given PAI score is calculated using this formula (Wiggins & Broughton, 1991):

$$\text{amplitude} = [(r_{cv})^2 + (r_{av})^2]^{1/2} \quad (2)$$

where r_{cv} is the correlation between IPC dominance and the PAI score and r_{av} is the correlation between IPC warmth and the PAI score.

[1]Many assessments of the interpersonal circumplex employ the structural summary method, which results in an omnibus R^2 coefficient. However, in our anlayses we used dimensional scores (not octant scores) to estimate correlations for each octant (R^2 values are not reported using this method; see Gurtman, 1992, 1994). approach When creating a curve using predicted correlations, there is no reason to also compute an R^2 (M. Gurtman, personal communication, May 28, 2010).

The amplitude can range from .00 (the PAI scale correlates equally to all IAS octants) to 1.00 (the extent to which the PAI scale discriminates from other IAS octants). The amplitude values obtained for DOM and WRM in relation to the IAS octants are presented in Table 1. The amplitude for PAI DOM was .72 and the amplitude for PAI WRM was .63. These values indicate that both scales of the PAI are fairly well saturated with interpersonal content and discriminate from other octants as assessed by the IAS.

The angular displacement of the curve is the point at which a PAI score has its highest positive correlation with the IPC and represents the angular location of that PAI scale on the circumplex. Theoretically, the PAI scale that measures dominance should obtain an angular location value near 90° on the IAS and the PAI scale that measures warmth should obtain an angular location value near 0° (or 360°) on the IAS. The angular displacement of a given PAI score is calculated using this formula (Wiggins & Broughton, 1991):

$$\text{angular displacement} = \arctan(r_{cv}/r_{av}) \quad (3)$$

The resulting angular displacements for DOM and WRM in relation to the IAS are presented in Table 1. The angular location for DOM of 69° places it just within the PA (Assured-Dominant) segment of the IAS, but it is near the boundary with the NO (Gregarious-Extraverted) octant. The angular location for WRM of 8° places it well within the LM (Warm-Agreeable) segment of the IAS, off by 8° from the theoretical target value of 0°. Both values represent acceptable angular locations for the PAI interpersonal scales.

The sinusoidal curve is based on the parameters of amplitude, elevation, and displacement (see Figure 2). By applying the calculated amplitude, elevation, and displacement values to the sinusoidal formula presented earlier, it is possible to estimate correlations of the PAI scales to the IAS octants and thereby create a graphical representation of the correlations between DOM and WRM and the IAS octants (see Figure 3). In the current analysis IAS DOM and WRM scores were used to estimate these correlations because this allows for a substantial increase in reliability of measurement and a decrease in the likelihood of Type I errors (see Markey & Markey, 2006; Markey, Markey & Tinsley, 2005) than if the eight IAS octants were used separately. Theoretically, the PAI DOM scale should correspond to the PA octant and inversely to the HI octant, whereas the PAI WRM scale should correspond to the LM octant and inversely with the DE octant. As shown in Figure 3, individuals who scored high on DOM were most likely to report interpersonal styles related to the PA (Assured-Dominant) octant ($r = .63$) and were least likely to report interpersonal styles related to the HI octant ($r = -.59$). Individuals who scored high on WRM were most likely to report interpersonal styles related to the LM (Warm-Agreeable) octant ($r = .66$) and were least likely to report interpersonal styles related to the DE octant ($r = -.58$).

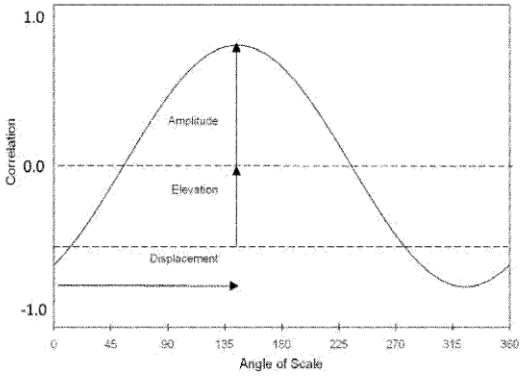

FIGURE 2.—Parameters of the sinusoidal curve.

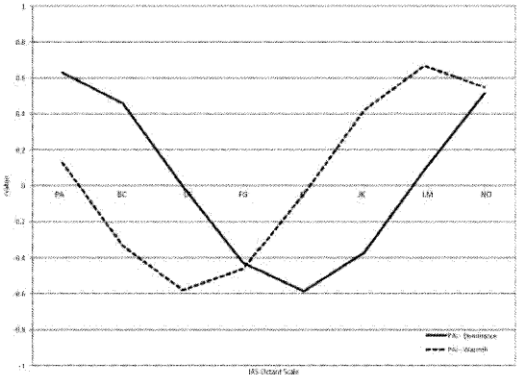

FIGURE 3.—Circumplex projections of the PAI interpersonal scales on the IAS. *Note.* PAI = Personality Assessment Inventory; IAS = Interpersonal Adjectives Scale; PA = Assured-Dominant; BC = Arrogant-Calculating; DE = Cold-hearted; FG = Aloof-Introverted; HI = Unassured-Submissive; JK = Unassuming-Ingenuous; LM = Warm-Agreeable; NO = Gregarious-Extroverted.

STUDY 2

Method

Participants. One hundred seventy normal age college students (82 male, 88 female), mostly freshmen and sophomores, were recruited to participate in this study. All participants received credit toward course requirements in exchange for participation.

Measures

PAI (Morey, 1991, 2007): The PAI was administered again in Study 2. The obtained values of alpha were .79 for DOM and .80 for WRM; again, the two scales correlated at $r = .26$. The means for DOM and WRM in Study 2 are also highly comparable to those in the college normative sample (Cohen's $d = -.05$ for DOM and $-.01$ for WRM).

IIP–SC (Hopwood et al., 2008; Soldz et al., 1995): The IIP–SC is a 32-item version of the Inventory of Interpersonal Problems (IIP; Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988). Alden et al. (1990) used the IPC model to construct a 64-item circumplex version (IIP–C) from the original 127-item IIP of Horowitz et al. (1988).The IIP–C has been validated

through its use in clinical assessment and treatment research as well as with normal samples (e.g., college students; Gurtman, 1996; Horowitz, Rosenberg, & Bartholomew, 1993; Pincus & Wiggins, 1990). This 64-item version was further reduced by Soldz et al. (1995) to create the short circumplex form used in this study. The IIP–SC, which has been normed for use in college students (Hopwood et al., 2008), consists of sentences that describe difficulties in relating to others (e.g., "I try to control other people too much"), and these statements are rated using a 5-point response format labeled *not at all, somewhat, moderately, very,* and *extremely.* The items are scored on eight octant scales that can be combined in a weighted formula to determine the coordinate positions on the two main axes of the circumplex. The octant scales were standardized using the sample means and standard deviations. Scores were ipsatized to remove the general distress factor within the IIP as is the commonly accepted practice when using the IIP to examine correspondence to IPC structure (Gurtman & Pincus, 2000; Horowitz et al., 1988). Alpha coefficients for the octant scales in this sample ranged from .70 (PA: Domineering) to .85 (HI: Nonassertive).

Procedure. Following informed consent, participants completed the PAI and the IIP–SC as part of a larger battery of questionnaires that were administered in a fixed order. The PAI was completed before the IIP–SC in every case. On completion of the questionnaires, participants were given a written debriefing statement and compensated with course credit.

Results and Discussion

Scores on the IPC dimensions of warmth and dominance were calculated for the IIP–SC and the PAI scales. Table 2 reports the correlations between the DOM and WRM scores of the PAI and the axis coordinates of the IIP–SC. As in Study 1, convergent validity of the PAI interpersonal scales with their respective IIP–SC axis coordinates was supported by large correlations ($r_{dom} = .53$, $r_{wrm} = .63$). However, discriminant validity was improved relative to Study 1, with near-zero correlations observed between both PAI scales and their alternate axes on the IIP–SC.

As in Study 1, the IAS DOM and WRM scores were used to compute the amplitude, angular displacement, and the estimated correlations of the eight IAS octants with the PAI interpersonal scales. Table 2 presents the elevation, amplitude, and angular displacement values resulting from these analyses. Theoretically, elevation should be minimal (e.g., close to 0) and elevation values for the PAI DOM and WRM scales again show good circumplex structure ($\text{Elevation}_{dom} = .01$, $\text{Elevation}_{wrm} = .00$). The amplitude indicates the interpersonal content of the PAI scales. The amplitude values ($\text{Amplitude}_{dom} = .54$, $\text{Amplitude}_{wrm} = .63$) again reveal good saturation of interpersonal content as assessed by the IIP–SC. The angular location obtained for PAI DOM (97°) places it near the center of the PA (Dominant-Assured) segment of the IIP–SC. The angular location for PAI WRM was identical to the hypothesized theoretical value (0°) of the LM (Warm-Agreeable) segment. Figure 4 provides a graphic summary of the parameters of the sinusoidal curve and the relations between the octant scales of the IIP–SC and the PAI scales. As shown in Figure 4, individuals who scored high on DOM were most likely to report interpersonal styles related to the PA (Dominant-Assured) octant ($r = .53$) and were least likely to report interpersonal styles related to the HI (Unassured-Submissive) octant ($r = -.53$) which is consistent with expectations. Consistent with theoretical expectations, individuals who scored high on WRM were most likely to report interpersonal styles related to the LM (Warm-Agreeable) octant ($r = .63$) and were least likely to report interpersonal style related to the DE (Cold-hearted) octant ($r = -.63$).

TABLE 2.—Correlations and circumplex structural summary parameters between PAI Interpersonal scales and IIP–SC scores.

	PAI DOM	PAI WRM
IIP–SC axis coordinates		
Dominance	.53*	.00
Nurturance	−.07	.63*
Elevation	.01	.00
Amplitude	.54	.63
Angular displacement	97°	0°

Note. $n = 170$. PAI = Personality Assessment Inventory; DOM = Dominance; WRM = Warmth; IIP–SC = Inventory of Interpersonal Problems–Short Circumplex.
*$p < .05$.

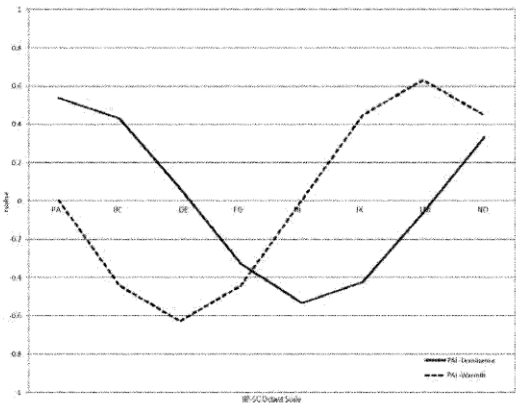

FIGURE 4.—Circumplex projections of the PAI interpersonal scales on the IIPSC. *Note.* PAI = Personality Assessment Inventory; IIPSC = Inventory of Interpersonal ProblemsShort Circumplex; PA = Domineering; BC = Vindictive; DE = Cold; FG = Socially Avoidant; HI = Nonassertive; JK = Exploitable; LM = Overly Nurturant; NO = Intrusive.

GENERAL DISCUSSION

The constructs of the IPC are proposed to be important for enhancing clinical diagnosis and understanding treatment process; however, these constructs are absent from most multiscale inventories used in psychological assessment. The PAI includes scales to measure the two main axes of the IPC, but there has been limited research published on their validity. Two studies examined the convergent validity of the PAI interpersonal scales, DOM and WRM, using two widely used measures of the IPC, the IAS and the IIP–SC. Overall, the results supported the validity of DOM and WRM, showing high convergent correlations with the main axes of both IPC measures. Discriminant validity was excellent using the IIP–SC as the criterion measure and acceptable using the IAS. Circumplex analyses from both studies showed that DOM projects, as expected, into the PA (Dominant-Assured) segment and that WRM projects, as expected, into the

LM (Warm-Agreeable) segment of the IPC. Figures 2 and 3, depicting the associations of the DOM and WRM scales with the octants of the IAS and IIP–SC, demonstrate the expected pattern of circumplex correlations between the respective IPC dimensions and the PAI interpersonal scales.

The discriminant and convergent correlations of DOM and WRM with the main axes of the IAS are quite similar to those reported in the test manual from an adult sample. The findings of the second study, which used an IPC measure focusing on interpersonal problems rather than styles, showed better discriminant validity and closer fit to the circumplex structure. There are several possible explanations for this finding. The PAI and the IIP–SC are clinical, or problem-focused, instruments. Therefore, dominance on the PAI might have more structural similarity to problem-focused dominance on the IIP–SC. In addition, there might be item content within the PAI DOM scale that indicates more affiliative rather than purely dominant interpersonal behaviors. However, the success with which the PAI WRM scale converged with the IIP nurturance axis suggests the discriminant validity issues with the IAS might be attributable to a rotation in circumplex space relative to the IAS and not an issue with the structure of the PAI interpersonal scales. Overall, the magnitude of discriminant validity correlations between the PAI scales and the IAS are similar to prior structural validations of IPC measures (Alden et al., 1990) and they support the utility of the PAI interpersonal scales in assessment of the IPC model.

The inclusion of valid interpersonal scales in the PAI demonstrates the importance of adding IPC scales to larger, multiscale clinical assessment inventories. Although the findings reported here are supportive of the PAI interpersonal scales, further scale revisions might be in order to provide a more comprehensive assessment of the interpersonal circumplex. The PAI scales do not include octant subscales, which are commonly found in other IPC measures, and which could limit the scope and sensitivity to off-axis constructs of the IPC. The creation of IPC octant scales from the PAI would offer a comprehensive and equivalent measure of interpersonal behaviors within a clinical assessment instrument and would be of interest to interpersonally oriented clinicians looking for multiscale clinical assessment measures.

There are at least three limitations of this study that should be noted. First, the order of administration of the PAI and the IPC measures was not alternated within the two studies. Second, although the great majority of the participants were normal-age college students (i.e., between 17 and 22 years old), age information was not gathered in either study. Third, the exclusive use of undergraduate students in both studies can be seen as limiting the generalizability of these findings. Although the circumplex structure of the DOM and WRM scales of the PAI should be investigated in clinical populations, it is important to consider that the two scales yield highly similar distributions in normal and clinical samples (Morey, 2003). The range and normal shape to these distributions suggests that meaningful inferences can be offered for deviant scores at both ends of the DOM and WRM scales. This attribute maximizes the potential information that can be gained from them across a wide array of respondent populations and assessment contexts. The added knowledge that these dimensions are simultaneously related to the IPC should serve as encouragement to further investigate their utility in evaluating treatment prognosis and optimal treatment selection.

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