

# Validity of the Inventory of Interpersonal Problems for Predicting Treatment Outcome: An Investigation With The Pennsylvania Practice Research Network

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In this study, we examined the relationship between treatment outcome and variables from the Inventory of Interpersonal Problems Circumplex scales (IIP-C; Horowitz, Alden, Wiggins, & Pincus, 2000) in the Pennsylvania Psychological Association's Practice Research Network (PRN; Borkovec, Echemendia, Ragusea, & Ruiz, 2001). The PRN was a naturalistic observation treatment outcome study conducted with clinicians who were providing outpatient therapy. Assessment instruments, including the Compass Assessment System (Howard, Brill, Lueger, O'Mahoney, & Grissom, 1993; Sperry, Brill, Howard, & Grissom, 1996) and the IIP-C, were used to assess outcome at the 7th session ( $N = 73$ ) and at termination ( $N = 42$ ). Significant associations were identified between seventh-session outcome and most of the IIP variables. Only IIP elevation and amplitude were related to termination outcome. Elevation, amplitude, and hostile submissive problems were related to treatment length. Ad hoc analyses indicated that the IIP elevation fully mediated the relationships between interpersonal problems and seventh-session outcome but not the relationship between amplitude and outcome. We discuss the results in relation to the external validity of the IIP.

Interpersonal behavior has been viewed as a fundamental component of personality within theoretical and clinical perspectives (e.g., Benjamin, 1996, 2003; Kiesler, 1992; Leary, 1957; McLemore & Benjamin, 1979; Pincus & Ansell, 2003; Safran, 1990a, 1990b). Many researchers have advocated the use of personality assessment in psychotherapy (Ben-Porath,

1997; Costa & McCrae, 1992; Harkness & Lilienfeld, 1997), and the assessment of interpersonal problems may be potentially valuable for several reasons. First, theoretical and empirical work points to important relationships between interpersonal behavior and psychopathology (Horowitz, 2004). Theorists such as Leary (1957), Kiesler (1982), and

Benjamin (1996, 2003) posited that adult psychopathology is primarily expressed through disordered interpersonal relationships and that pathology develops due to dysfunctional interpersonal relationships in childhood. Empirical studies have also demonstrated that many forms of pathology are associated with interpersonal impairment including depression (Joiner, 2002), bipolar disorder (Miklowitz, 2001), substance abuse and dependence (Fals-Stewart, Birchler, & O'Farrell, 1999; Newcomb, 1994), and personality disorders (Benjamin & Wonderlich, 1994; Pincus & Wiggins, 1990). A second area of support for the therapeutic relevance of interpersonal assessment is found in the psychotherapy literature. The foundation of psychotherapy is the interpersonal relationship. Many therapeutic approaches, particularly psychodynamic interventions, target maladaptive interpersonal behavior (Benjamin, 1996, 2003; Strupp & Binder, 1984). Clinicians using these interventions will use the therapeutic relationship as a tool to induce change. Empirical studies have also demonstrated that interpersonal characteristics are associated with therapeutic outcome (e.g., Blatt, Zuroff, Quinlan, & Pilkonis, 1996). Moreover, therapeutic approaches that have not traditionally emphasized the importance of interpersonal behavior, such as cognitive therapy, have had proponents highlight the importance of interpersonal transactions for these interventions (Safran & Segal, 1996).

The Inventory of Interpersonal Problems (IIP; Horowitz, Alden, Wiggins, & Pincus, 2000) is a self-report instrument that may be useful for assessing interpersonal behavior in psychotherapy clients. The instrument was created to measure recurrent interpersonal themes identified in the clinical material of patients receiving outpatient therapy (Horowitz, Rosenberg, Baer, Ureno, & Villasenor, 1988). The instrument has since been shortened to contain 64 items (IIP-Circumplex scales or IIP-C) that assess behaviors that are problematic for the respondent (Alden, Wiggins, & Pincus, 1990). The IIP-C contains eight subscales that can be conceptually organized in a circular manner along the dimensions of dominance (Domineering to Nonassertive) and affiliation (Cold to Self-Sacrificing). These dimensions are the basic elements of interpersonal behavior (Leary, 1957; Pincus & Ansell, 2003). The circumplex of interpersonal problems is presented in Figure 1. Circumplex quadrants are often described as representing a mixture of the underlying dimensions (e.g., hostile dominance or friendly submissiveness) and are useful summary descriptors of interpersonal behavior. Additional methods of analyzing IIP responses have been developed to capture circumplex structural characteristics such as the overall level of interpersonal distress (i.e., elevation) or the specificity or rigidity of interpersonal problems (i.e., amplitude; Gurtman & Balakrishnan, 1998; Gurtman & Pincus, 2003).

Empirical work has demonstrated the validity of the IIP for predicting therapeutic process and outcome variables. Studies have demonstrated that the IIP is sensitive to clinical

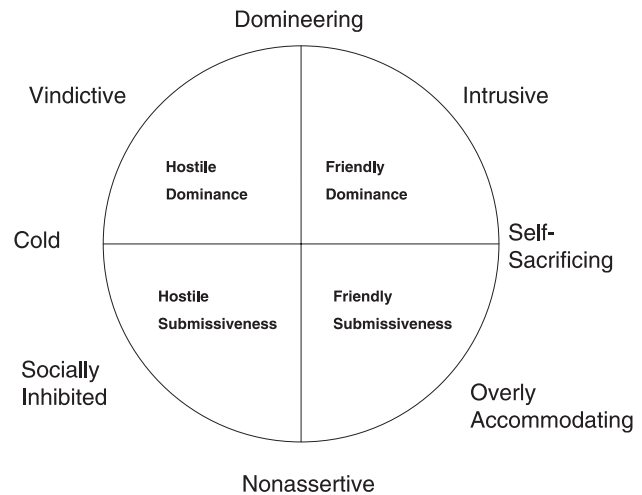


FIGURE 1 The interpersonal problems circumplex.

improvement in brief psychodynamic therapy (Horowitz et al., 1988), cognitive therapy (Vittengl, Clark, & Jarrett, 2003), and pharmacological therapy (Markowitz et al., 1996). Theoretical work, however, points to specific relationships between certain types of interpersonal problems and outcome. Friendly submissive behaviors are held to be complementary to the typical behaviors of a therapist, which are likely to be friendly dominant; hostile dominance is expected to conflict with the processes and goals of psychotherapy (Kiesler, 1982; Tracey, 1993). Research has generally supported this idea. Friendly submissive tendencies (e.g., being too exploitable and overly nurturing) have been associated ( $r$ s ranging from .40 to .48) with a client's ability to develop a therapeutic alliance, whereas hostile dominant tendencies (e.g., being too domineering or vindictive) have been negatively associated ( $r$ s  $\cong$  -.30) with therapeutic alliance (Muran, Segal, Samstag, & Crawford, 1994). Friendly and friendly submissive patients have been rated as more suitable ( $d = .33$  to .85)<sup>1</sup> for psychotherapy than hostile patients (Gurtman, 1996). Both friendly dominant and friendly submissive patients were rated by therapists as exhibiting greater clinical improvement than hostile dominant and hostile submissive patients ( $d = .17$  to .85), with the most prominent differences emerging in the comparisons with the hostile dominant patients (Gurtman, 1996). Pretherapy hostile dominant problems have also been associated with 6-month outcome with correlations ranging from -.36 (Vindictive/Self-Centered) to -.45 (Domineering/Controlling), although a significant negative association was also identified between friendly dominant interpersonal problems and outcome ( $r = -.43$ ; Borkovec, Newman, Pincus, & Lytle, 2002). Friendly submissive problems are more frequently

<sup>1</sup>We selected a representative sampling of findings from this study to estimate these scores.

discussed in therapy and rated as improved by both patient and therapist (76% to 89% improvement) when compared to hostile dominant problems (0% to 35% improvement; [Horowitz, Rosenberg, & Bartholomew, 1993](#)).

With respect to treatment variables, IIP structural characteristics have had more inconsistent results than the lower order interpersonal dimensions have had. Generalized interpersonal distress, or elevation, has been associated (e.g.,  $r_s = -.30$  to  $-.34$ ) with poor clinical outcome ([Gurtman, 1996](#); [Gurtman & Balakrishnan, 1998](#)), although one study ([Mohr et al., 1990](#)) found high levels of distress in individuals who deteriorated and those who improved. Amplitude was found to be unrelated to outcome after the effects of elevation were partialled out of the analysis ([Gurtman & Balakrishnan, 1998](#)), findings that suggest that amplitude may not be relevant for predicting treatment outcome.

The generalizability of the previously reviewed findings may be limited because they were largely obtained through studies that contained many experimental controls. Although such studies maximize internal validity and are necessary for identifying cause and effect relationships ([Borkovec, 1997](#); [Borkovec & Castonguay, 1998](#)), their results may be insufficient to address questions regarding the practical value (i.e., clinical utility) of the instrument in real-world settings ([McGrath, 2001](#)). [Seligman \(1995\)](#) and others (e.g., [Goldfried & Wolfe, 1998](#)) noted that most treatment outcome studies are not clinically representative; that is, they do not possess characteristics that are routinely present in real-world practice. Clinicians are unlikely to use the same exclusionary criteria (e.g., no current substance abuse or comorbidity or no concurrent treatment with psychotropic medications) and clinical procedures (e.g., random assignment of clients, manualized treatment, or a fixed number of sessions) that are commonly used in treatment studies. [Weisz, Donenberg, Han, and Weiss \(1995\)](#) referred to the myriad of differences between well-controlled and clinically representative studies as a constellation of variables. Studies conducted to examine this issue have produced mixed results, with some studies reporting comparable findings between well-controlled and clinically representative settings ([Hilsenroth, Ackerman, Blagys, Baity, & Mooney, 2003](#); [Shadish et al., 1997](#)) and others reporting important differences ([Weisz et al., 1995](#); [Westen & Morrison, 2001](#)). It is unclear how previous IIP results will generalize to clinically representative settings.

Our aim of this study was to examine the relationship between IIP-C variables and therapeutic outcome, including treatment length, within the Pennsylvania Psychological Association's Practice Research Network (PRN; [Borkovec, Echemendia, Ragusea, & Ruiz, 2001](#)). The PRN was a pilot project that established a network of clinicians, all of whom were providing outpatient therapy, to participate in a naturalistic outpatient treatment outcome study. The characteristics of this study allowed it to be more clinically representative than many of the previous IIP investigations. The earlier arti-

cle on this project ([Borkovec et al., 2001](#)) included a discussion on the background and history of the project and also presented results on symptomatic, functional, and interpersonal outcomes. This study differs from the previous work in its focus on the relationship between pretherapy interpersonal behavior and outcome. The main objective was to examine the relationships between IIP structural characteristics, IIP quadrant scores (i.e., friendly dominant, friendly submissive, hostile submissive, hostile dominant), and IIP scale scores with treatment outcome and treatment length. Based on previous results (e.g., [Borkovec et al., 2002](#); [Horowitz et al., 1993](#)), we predicted that the IIP-C scores would be related to treatment outcome at both the seventh session and at termination. Although IIP elevation was expected to correlate with outcome and treatment length, no specific predictions were made as to the nature of the relationship given the inconsistency in previous findings (e.g., [Mohr et al., 1990](#)). We also did not expect amplitude to be associated with outcome and treatment length based on previous findings ([Gurtman & Balakrishnan, 1998](#)). It was expected that IIP hostile interpersonal problems, particularly hostile dominance, would be associated with poor clinical outcome and reduced treatment length, whereas affiliative interpersonal problems, particularly friendly submissive problems, would be related to clinical improvement and increased treatment length. Replication of previous IIP results in the clinically representative PRN sample would extend the literature through demonstrating the external validity and potential clinical utility of the instrument (see [McGrath, 2001](#)).

## METHOD

### Participants

Information about the clinicians and clients who participated in the PRN project was described in [Borkovec et al. \(2001\)](#) and we review it here briefly. Two hundred and five clinicians initially volunteered to participate in the project, but only 77 completed the necessary paperwork to begin the study. Of those 77, only 57 clinicians submitted data for one or more clients. The average age of these 57 clinicians was 48 years ( $SD = 8$ ); 50% of were male, and 50% were female; and over 90% were White and of Euro-American heritage. Seventy-seven percent of the clinicians had PhD degrees, 15% had master's degrees, and the remainder (8%) had PsyD, EdD, or other degrees. Ninety-one percent of the clinicians practiced in independent or group practice settings. Clinicians in the sample treated an average of 23 ( $SD = 9$ ) clients per week. Therapists participating in the project were asked to indicate how much different theoretical orientations influenced their practice. The PRN Task Force believed this information would be a good reflection of the type of treatment provided because most clinicians in real-world settings used integrative approaches that borrow from different treatment

orientations. The values reported for the entire sample were 34% for cognitive therapy, 20% for psychodynamic, 19% for behavioral, 10% for family systems, 9% for experiential, and 8% for other.

Initial assessments were obtained on 220 clients. The average age of the clients was 39 years ( $SD = 14.58$ ), 65% were women, 91% were White, and 77% were of Euro-American heritage. Seventy-five percent of the sample had attended at least some college. Fifty-two percent were married, 31% were single, 10% were divorced, and the remainder (7%) were either widowed, separated, or did not report their relationship status. The modal income fell in the \$36,000 to \$50,000 range. Thirty-four percent of the participants reported their occupation as professional, 16% as other, 11% as clerical, 8% as technical, and the remainder (31%) as skilled laborers, sales persons, or service providers. Sixty-one percent of the participants reported previous mental health treatment, and more than half (52%) were taking psychotropic medications at the time of the study. Forty-one percent of the clients reported a family history of psychiatric disorder. Most of the clients were assigned a primary *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision [DSM-IV-TR]; American Psychiatric Association, 2000) diagnosis of adjustment disorder with depression or anxiety (39%), mood disorder (25%), or anxiety disorder (18%). Other diagnoses included eating disorders, substance use disorders, sexual disorders, and other miscellaneous disorders. Approximately 9% of the sample was also diagnosed with a personality disorder.

## Materials

The main instrument used in the study was the PRN Core Battery. The core battery was based primarily on the Compass Assessment System (Compass) developed by Howard and colleagues (Howard, Brill, Lueger, O'Mahoney, & Grissom, 1993; Sperry, Brill, Howard, & Grissom, 1996) but also included other instruments. Previous work has demonstrated that the Compass has good reliability and validity (Howard et al., 1993; Leon, Kopta, Howard, & Lutz, 1999). The core battery included an observer report section that was completed by the clinician and a self-report section for the client. The clinician's section, the Therapist Rating of Client Functioning, required clinicians to provide information about the client's multi-axial DSM-IV-TR diagnosis, current level of functioning, treatment responsiveness, and current psychopharmacological treatment. Clinicians also rated the client's overall symptomatic and functional impairment using the Global Assessment of Functioning (GAF) scale (American Psychiatric Association, 2000). The Client Questionnaire portion of the core battery included sections on demographics, treatment expectations, self-description, ratings of the therapist, current well-being, current functioning, and current symptoms. The Current Functioning scale assessed the areas of self-management, work and/or school function-

ing, intimacy, family functioning, social problems, and health and grooming. Patients responded to these items using a 6-point Likert scale ranging from 2 (*not at all difficult*) to 6 (*very difficult*); a *does not apply to me* option was also available. Items on the Current Symptoms scale assessed symptoms of adjustment disorder, anxiety, mania, depression, obsessive-compulsive disorder, phobia, and substance abuse. Patients answered these items using a 6-point Likert scale ranging from 1 (*not at all*) to 6 (*all of the time*). A global outcome index, the Mental Health Index (MHI), was the main outcome variable used in this study. The MHI was derived from the scores from the Current Symptoms, Current Functioning, and Subjective Well-Being scales, with higher scores reflecting better mental health functioning. The score for the Current Symptoms scale was the total of the symptom subscales. The score for the Current Functioning scale was derived from the functioning subscales. The internal consistency reliability (coefficient  $\alpha$ ) of the MHI in this sample was  $\alpha = .81$ . Howard et al. (1993) reported the internal consistency reliability as  $\alpha = .87$  and a test-retest reliability of  $r = .82$ . Instruments that assessed self-esteem, physical functioning, and interpersonal problems were also included in the core battery.

Interpersonal problems were assessed with the IIP-C (Horowitz et al., 2000). The IIP-C is a 64-item self-report instrument that required individuals to respond to items using a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). The instrument contains eight scales that assess different aspects of an individual's interpersonal difficulties. These scales assess problems related to manipulating, controlling, and/or being too aggressive toward others (Domineering); being distrustful, suspicious, and self-centered (Vindictive); having difficulties expressing affection and sympathy and maintaining relationships (Cold); being too socially anxious, shy, and inhibited (Socially Inhibited); having difficulties being assertive and forceful (Nonassertive); having difficulties expressing anger and being too trusting and exploitable (Overly Accommodating); trying too hard to please others or being too caring, trusting, and permissive of others (Self-Sacrificing); and being overly intrusive, attention seeking, and inappropriately open (Intrusive). Alden et al. (1990) reported internal consistency reliability values ranging from  $\alpha = .72$  (Intrusive) to  $\alpha = .85$  (Socially Avoidant and Nonassertive). Similar levels of internal consistency (range  $\alpha = .76$  [Intrusive] to  $.88$  [Nonassertive]) and test-retest reliability (range from  $r = .58$  [Domineering] to  $.84$  [Socially Avoidant]) were reported by Horowitz et al. (2000).

## Procedure

Licensed clinicians who were practicing outpatient therapy in Pennsylvania were solicited to participate in a naturalistic treatment outcome study. Clinicians who initially agreed to participate were asked to complete a questionnaire that assessed various aspects of themselves and their practice orien-

tation. Participating clinicians were also provided with multiple PRN Core Battery questionnaires and were instructed to administer the battery to any of their clients who agreed to participate. Clients were provided with an informed consent form, and clinicians explained the procedures, risks, and benefits of the project. Each clinician administered a Core Battery after the first session (pretherapy), after the seventh session (seventh-session assessment), and at the end of therapy (termination). The numbers of participants completing the assessments at the different assessment periods were 220 for the pretherapy assessment, 73 for the seventh-session assessment, and 42 for the termination assessment. The specific reasons for client dropout were not obtained in this study, but interviews with some of the clinicians indicated that the terminations included both premature and consensual termination. The number of sessions attended by the clients was also obtained for participants completing the termination assessment. The average number of sessions completed by these clients was 11 ( $SD = 10$ ).

## RESULTS

### Attrition Analyses

Not all of the 220 participants who began the study completed the assessments at both the seventh session and termination. To identify differences between dropouts and completers, a series of analyses were calculated to compare background characteristics (i.e., concurrent psychopharmacological treatment, previous psychotherapy), severity of clinical presentation (i.e., comorbidity, pretherapy MHI, and pretherapy GAF) and IIP variables (i.e., structural scores, scale scores) between dropouts and completers (both seventh-session completers and termination completers). The only significant finding identified was that IIP elevation scores were significantly different,  $t(217) = -2.53, p < .05$ , Cohen's  $d = .36$  between the dropouts ( $M = 39.96, SD = 8.58$ ) and seventh-session completers ( $M = 42.89, SD = 7.28$ ). No other significant differences were identified between the dropouts and completers.

### Interpersonal Problems and Therapeutic Outcome

Reliable change indexes (RCIs; [Jacobson & Truax, 1991](#)) were calculated for each patient using the MHI (the main outcome variable). RCIs are an estimate of the reliability of the magnitude of change. RCI values were traditionally used to assign participants, based on prespecified cut scores, to different outcome groups (e.g., improved, unchanged; [Ogles, Lunnen, & Bonesteel, 2001](#)). RCI values can also provide a dimensional value of change that takes into account the variability of scores due to measurement error. RCI values were calculated for both the seventh session and termination with the following formula<sup>2</sup>:

<sup>2</sup>The standard error of the difference ( $S_{diff}$ ) score is obtained using the following formula:

$$RCI = \frac{\text{Seventh Session MHI} - \text{Pretherapy MHI}}{\text{Standard Error of the Difference } (S_{diff})}$$

One possible threat to the validity of RCI scores is regression to the mean in pretherapy scores. Regression to the mean in which cases with the most extreme pretherapy scores exhibit the greatest magnitude of change largely because of measurement error (and not the treatment) can affect the internal validity of a study. The presence of regression to the mean can be evaluated by examining the correlation between (in this case) pretherapy MHI scores and the magnitude of change ([Speer, 1994](#)). Correlations between the pretherapy MHI (higher MHI scores reflect better well-being and functioning and lower symptoms) and the level of change were  $r = -.49, p < .01$  (seventh session) and  $r = -.48, p < .01$  (termination), indicating that the lower the pretherapy MHI the greater the amount of improvement. These results suggest that regression to the mean was operating in this sample. To control for this confound, pretherapy MHI scores were adjusted to obtain the client's estimated true score (see [Speer, 1992](#); [Speer & Greenbaum, 1995](#)) using the following formula:

$$\text{Adjusted Pretherapy MHI} = [.87 \times (\text{MHI} - M \text{ MHI})] + M \text{ MHI}$$

The value of .87 is the internal consistency reliability reported by [Howard et al. \(1993\)](#). Although others have used the test-retest reliability coefficient in this formula ([Speer, 1992, 1994](#); [Speer & Greenbaum, 1995](#)), test-retest reliability is not necessarily the best estimate of the reliability for outcome measures ([Kendra, Lambert, & Andrews, 1996](#)). The MHI was designed to quantify change over short periods of time in therapy, and the available test-retest estimate (e.g.,  $r = .82$ ) was obtained using outpatients at the third session of psychotherapy ([Howard et al., 1993](#)). The change between the pretherapy scores and the third-session scores in [Howard et al.](#) is likely to represent actual changes in well-being, symptoms, and functioning and less likely to be a reflection of measurement error. Thus, the RCIs used in these analyses were calculated with the adjusted pretherapy MHI scores.

Correlation coefficients were calculated to determine the relationships between outcome, treatment length, and the IIP-C variables. The correlations between outcome and treatment length and the IIP structural characteristics and quadrant scores are presented in Table 1. As noted earlier, amplitude represents the rigidity in interpersonal problems, with high scores representing a profile with well-defined peak(s) and low scores reflecting a profile that has little vari-

$$S_{diff} = \sqrt{2(\text{Standard error of measurement})^2}$$

In this study, the  $S_{diff}$  was obtained with the following values:

$$S_{diff} = \sqrt{2(4.36)^2} = 6.16$$

**TABLE 1**  
**Correlations Between IIP–C Structural**  
**Characteristics, Quadrant Scores,**  
**and Outcome and Treatment Length**

IIP–C Variables	Seventh Session Outcome <sup>a</sup>	Termination Outcome <sup>b</sup>	No. of Sessions <sup>c</sup>
Amplitude	–.18	–.43**	.69**
Elevation	–.54**	–.33*	.49**
Friendly dominant	–.42**	–.24	.28
Friendly submissive	–.41**	–.23	.34
Hostile dominant	–.35**	–.17	.36
Hostile submissive	–.50**	–.15	.24

*Note.* Outcome represents adjusted reliable change index scores in which higher scores reflect greater clinical improvement. Data were missing from 2 participants at the termination assessment. Information about the number of sessions attended was only collected for participants who completed the termination assessment. Clinicians did not provide information for 12 of these participants. IIP–C = Inventory of Interpersonal Problems–Circumplex scales.

<sup>a</sup>*n* = 73. <sup>b</sup>*n* = 40. <sup>c</sup>*n* = 30.

\**p* < .05. \*\**p* < .01.

ability across the scale scores. Elevation reflects the overall level of interpersonal distress in the profile and is obtained by calculating the mean of all of the IIP–C scale scores. Higher scores reflect generally higher levels of interpersonal distress. Amplitude and elevation were obtained with the following formulas:

$$\text{Amplitude} = \sqrt{(\text{Affiliation})^2 + (\text{Dominance})^2}$$

$$\text{Elevation} = (\sum \text{IIP–C scale scores})/8.$$

The affiliation and dominance scores were obtained with the following formulas:

$$\text{Dominance} = .25 \times [\text{Domineering} - \text{Nonassertive} + .71 \times (\text{Intrusive} + \text{Vindictive} - \text{Socially Inhibited} - \text{Overly Accommodating})].$$

$$\text{Affiliation} = .25 \times [\text{Self-Sacrificing} - \text{Cold} + .71 \times (\text{Intrusive} - \text{Vindictive} - \text{Socially Inhibited} + \text{Overly Accommodating})].$$

The quadrant scores were obtained with the following formulas:

$$\text{Friendly dominant} = \text{Intrusive} + (.707 \times \text{Domineering}) + (.707 \times \text{Self-Sacrificing})$$

$$\text{Friendly submissive} = \text{Overly Accommodating} + (.707 \times \text{Self-Sacrificing}) + (.707 \times \text{Nonassertive})$$

$$\text{Hostile submissive} = \text{Socially Inhibited} + (.707 \times \text{Nonassertive}) + (.707 \times \text{Cold})$$

$$\text{Hostile dominant} = \text{Vindictive} + (.707 \times \text{Domineering}) + (.707 \times \text{Cold}).$$

The results in Table 1 revealed significant associations between seventh-session outcome and IIP elevation, friendly dominance, friendly submissiveness, hostile dominance, and hostile submissiveness. Only IIP amplitude and elevation were associated with termination outcome and treatment length.

Correlations were also calculated to examine the relationships between the IIP scales and outcome (i.e., improvement and session number). The individual scales provide fine-grained analyses that may clarify relationships identified in the analyses using the higher order quadrants. These results are presented in Table 2. For seventh-session outcome, the pattern of correlations is generally consistent with the quadrant analyses (with the exception of the Domineering scale). No significant associations were identified with termination outcome. Significant findings not apparent in the quadrant-level analyses revealed significant relationships between the Socially Inhibited and Nonassertive IIP scales and treatment length.

Given the lack of specificity in the relationship between interpersonal problems and outcome, ad hoc analyses were conducted to determine whether these relationships would remain significant when the effects of elevation were controlled for. It appeared very possible that elevation was functioning as a mediating variable that accounted for the relationships between outcome and the IIP quadrants and amplitude. A variable is considered a mediator when it functions as the “generative mechanism” accounting for the influence of the predictor on the dependent variable (Baron & Kenny, 1986; MacKinnon, 1994). Theoretically, it is possi-

**TABLE 2**  
**Correlations Between IIP–C Scales,**  
**Outcome, and Treatment Length**

IIP–C Scales	Seventh Session Outcome <sup>a</sup>	Termination Outcome <sup>b</sup>	No. of Sessions <sup>c</sup>
Domineering	–.19	–.18	.16
Vindictive	–.33**	–.09	.21
Cold	–.33**	.05	.06
Socially Inhibited	–.56**	–.19	.41*
Nonassertive	–.33**	–.21	.41*
Overly Accommodating	–.35**	–.24	.27
Self-Sacrificing	–.40**	–.19	.28
Intrusive	–.35**	–.05	.13

*Note.* Outcome represents adjusted reliable change index scores in which higher scores reflect greater clinical improvement. Data were missing from 2 participants at the termination assessment. Information about the number of sessions attended was only collected for participants who completed the termination assessment. Clinicians did not provide information for 12 of these participants. IIP–C = Inventory of Interpersonal Problems Circumplex Scales.

<sup>a</sup>*n* = 73. <sup>b</sup>*n* = 40. <sup>c</sup>*n* = 30.

\**p* < .05. \*\**p* < .01.

ble the level of interpersonal distress is more relevant for predicting outcome than the specific nature of the distress. Elevation also exhibited a pattern of correlations with the predictors and the dependent variables that was consistent with the role of mediation (Baron & Kenny, 1986). Elevation was correlated with seventh-session improvement ( $r = -.54$ ) and all of the IIP quadrant scores ( $r_s = .80$  to  $.87$ ). IIP quadrant scores were also correlated with seventh-session improvement (see Table 1). A similar pattern of correlations supported the possibility that elevation mediated the relationship between amplitude and termination outcome.

Five separate hierarchical regression analyses were used to determine whether the relationships between IIP amplitude and termination outcome and IIP quadrants and seventh-session outcome remained significant once the effects of elevation were partialled out of the equation. In the first regression analysis, termination outcome was regressed on elevation (Step 1) and then amplitude (Step 2). The results indicated a significant  $\Delta R^2$  value for Step 2 and amplitude remained a significant ( $p < .05$ ) predictor of outcome after partialling out the effects of elevation (partialled  $r [pr] = -.33$ ). Four additional hierarchical regression analyses were calculated. Seventh-session outcome was regressed on elevation (Step 1) and then the respective quadrant score (Step 2). Nonsignificant  $\Delta R^2$  values for the second step were identified in each analysis. These findings indicated that IIP quadrant scores were not significant predictors of seventh-session outcome after the effects of elevation were controlled for. The partial correlation coefficients between the IIP quadrant scores and seventh-session outcome ranged from  $pr = -.03$  to  $pr = -.08$ . Elevation fully mediated the relationships between the IIP quadrants scores and seventh-session outcome. Given the degree of similarity in the relationships between the quadrant and scale scores, the scale scores were not examined any further.

## DISCUSSION

These results reveal some unexpected findings. The most striking finding was that generalized interpersonal distress as opposed to problems specific to certain interpersonal quadrants was associated with poor outcome at the seventh session and at termination in the PRN sample. All of the IIP quadrant scores as well as almost all of the IIP scales were associated with poor seventh-session outcome. However, the relationships between specific interpersonal problems and outcome were no longer significant after the effects of interpersonal distress were partialled out. Although previous work has indicated that generalized interpersonal distress was related to poor outcome (Gurtman, 1996; Gurtman & Balakrishnan, 1998), we did not expect that the specific types of interpersonal problems would no longer be significant predictors for outcome after controlling for interpersonal distress. These findings are inconsistent with previous

work that has pointed to a specific pattern in which hostile or hostile dominant interpersonal problems were linked to poor outcome, and friendly and friendly submissive problems were related to good outcome (e.g., Alden & Capreol, 1993; Borkovec et al., 2002; Gurtman, 1996; Horowitz et al., 1993; Muran et al., 1994). These results are also inconsistent with theory that postulated a specific detrimental role for hostile dominant behaviors, behaviors that were believed would conflict with the process and goals of therapy (Kiesler, 1982; Tracey, 1993). Although these findings are inconsistent with previous interpersonal theoretical and empirical work, they are consistent with other research that has found that global symptomatic and functional pretherapy impairment reduces outcomes across many different types of interventions (Luborsky et al., 1993). Thus, generalized interpersonal impairment appears to be a valid predictor of poor outcome and may share some of the detrimental effects on therapeutic outcome exhibited by other forms of global impairment.

High amplitude scores were significantly associated with reduced levels of improvement, and this finding remained significant after the effects of elevation were partialled out. This result was not expected and was inconsistent with previous findings that showed that elevation mediated the relationship between amplitude and functioning (Gurtman & Balakrishnan, 1998). This finding, in conjunction with the previously discussed elevation findings, suggests that individuals with high levels of interpersonal distress and interpersonal rigidity have relatively worse improvement in subjective well-being, symptoms, and functioning than do individuals with lesser degrees of these characteristics.

Significant findings were also identified between IIP variables and treatment length. IIP elevation, amplitude, social inhibition, and nonassertiveness scores were associated with increased treatment length. This pattern of findings suggests that individuals with increased interpersonal distress and rigidity, particularly those with problems of social inhibition or unassertiveness, are likely to stay in treatment longer than others with lesser degrees of these characteristics. These findings are somewhat consistent with previous work (Mohr et al., 1990), which suggested that interpersonal distress might be an activating factor that keeps individuals motivated for therapy. Thus, although generalized interpersonal distress is associated with relatively poorer outcome, it may also be a factor that encourages clients to remain engaged in the psychotherapy.

These results should be interpreted very cautiously in light of the small sample sizes and the multitude of competing hypotheses. However, one speculation is that the inconsistencies between these and previously reported findings are due to the constellation of variables that differentiates the PRN from previous studies (Shadish et al., 1997). The level of experimental control has not been uniform in previous studies, but all possessed salient features that were absent in the naturalistic observation design of the PRN.

Previous studies have included controls such as exclusion criteria, a limited number of sessions, and interventions that were either manualized or generally restricted (e.g., brief psychodynamic therapy). Some researchers have also examined rigorously diagnosed clients or required participants to be free from psychotropic medications during the study (e.g., [Borkovec et al., 2002](#); [Horowitz et al., 1993](#); [Mohr et al., 1990](#)). PRN clients were self-referred and self-paying, they did not have to meet any uniform inclusion criteria, they had a variety of diagnoses (over 40% had a comorbid diagnosis), and over half were receiving concurrent pharmacological treatment. PRN clients also selected their own therapists, had control over the direction and nature of therapy, and were paying for the services. Therapists also had flexibility and control over the treatment approach. This level of flexibility is often absent in controlled outcome studies, and such flexibility may result in fundamental therapeutic changes. For instance, such flexibility may allow therapists more freedom to address interpersonal problems than would be the case in a more structured therapeutic format (e.g., manualized cognitive-behavioral therapy). These findings are consistent with previous work that has highlighted the importance of investigating treatment outcome in clinically representative conditions ([Hilsenroth et al., 2003](#); [Seligman, 1995](#); [Weisz et al., 1995](#); [Westen & Morrison, 2001](#)).

These findings provide mixed support for the validity of the IIP-C for predicting therapeutic outcome. The IIP is a well developed, psychometrically sound interpersonal assessment instrument that has a strong theoretical and empirical foundation ([Horowitz et al., 2000](#)). The findings reported here demonstrate the limits of the external validity of some of the previous IIP results but also indicate that some IIP variables do predict important therapeutic variables in clinically representative samples. The validity of other IIP scores may be moderated by the conditions (settings, clients, and treatments) under which it is used. Future work should continue to examine the conditions under which the IIP has and does not have validity for predicting therapeutic outcome.

This study possessed a number of limitations. First, the PRN study was a naturalistic observation that involved minimal experiment control. Although this might be viewed as the work's greatest strength, it is also its greatest weakness. The lack of rigorous experiment control eliminates the ability to make strong causal inferences ([Borkovec, 1997](#); [Borkovec & Castonguay, 1998](#)). Attempting to explain the results by discussing a constellation of variables does little to identify the characteristics that represent critical differences between well controlled and clinically representative research. Future work will need to identify those aspects that moderate the relationships between client characteristics and outcome to increase understanding in a practical way. A second significant limitation was the level of participant attri-

tion. The attrition rate in this study was much higher than attrition rates generally reported in other studies (see [Westen & Morrison, 2001](#)).<sup>3</sup> Although we identified relatively few differences between dropouts and completers, the exact impact of attrition is unknown. The scope of this study was another limitation. Relatively few therapists and clients participated in the study despite a concerted recruitment effort. The real-world settings in which PRN therapists worked and the type of clients they treated were not representative of all possible practice settings. Future work that uses a more representative sampling of clinicians, clients, and settings than the ones used in the PRN would be an important advance. A final limitation was our reliance on the IIP-C to assess interpersonal problems. The IIP-C is unable to capture complex interpersonal processes (e.g., recurrent maladaptive interpersonal cycles) that are important in therapy. Future work may benefit from using methods that allow for a more detailed assessment of interpersonal behavior (see [Pincus & Ansell, 2003](#)) than the one used in this study.

Researchers have advocated the use of personality assessment instruments for treatment planning ([Ben-Porath, 1997](#); [Costa & McCrae, 1992](#); [Harkness & Lilienfeld, 1997](#)). This investigation presented IIP findings that provided mixed support for our predictions based on previous work. Interpersonal problems are clearly relevant for understanding and treating psychopathology (e.g., [Horowitz, 2004](#); [Pincus & Wiggins, 1990](#); [Strupp & Binder, 1984](#); [Tracey, 1993](#)), and the IIP does appear to provide clinically relevant information in this domain. These findings highlight the importance of external validation research in programmatic clinical assessment research ([McGrath, 2001](#)).

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<sup>3</sup>In Westen and Morrison's (2001) meta-analysis of treatment outcome studies assessing the effectiveness of treatments for panic disorder, generalized anxiety disorder, and major depressive disorders, the average percent of completion for those entering the studies were 74% for depression, 86% for panic, and 84% for generalized anxiety studies.



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