Working Alliance, Interpersonal Problems, and Depressive Symptoms in Tele-Interpersonal Psychotherapy for HIV-infected Rural Persons: Evidence for Indirect Effects

Timothy Anderson, Andrew S. McClintock, Shannon S. McCarrick, Timothy G. Heckman, Bernadette D. Heckman, John C. Markowitz, and Mark Sutton

Objective: Interpersonal psychotherapy (IPT) has demonstrated efficacy for the treatment of depression, yet little is known about its therapeutic mechanisms. As a specific treatment, IPT has been shown to directly reduce depressive symptoms, although it is unclear whether these reductions occur via interpersonal changes. Within IPT, the potential role of the working alliance, a common factor, as a predictor of depression and interpersonal changes is also unclear. Method: Participants were 147 depressed persons living with HIV in rural communities of 28 U.S. states enrolled in a randomized clinical trial. Seventy-five patients received up to 9 sessions of telephone-administered IPT (tele-IPT) plus standard care and 72 patients received standard care only. Two models were tested; one included treatment condition (tele-IPT vs. control) and another included the working alliance as independent variables. Results: The first model found an indirect effect whereby tele-IPT reduced depression via decreased social avoidance. There was a direct effect between tele-IPT and reduced depression. In the second model, the working alliance influenced depressive symptom relief via reductions in social avoidance. Both goal and task working alliance subscales were indirectly associated with reductions in depressive symptoms, also through reductions in social avoidance. There were no direct effects involving the working alliance. Tele-IPT’s influence on depressive symptom reduction was primarily through a direct effect, whereas the influence of working alliance depression was almost entirely via an indirect effect through interpersonal problems. Conclusion: Study findings have implications for IPT when intervening with depressed rural people living with HIV/AIDS over the telephone. © 2017 Wiley Periodicals, Inc. J. Clin. Psychol. 74:286–303, 2018.

Keywords: alliance; interpersonal problems; depression; social avoidance; interpersonal psychotherapy

Many randomized controlled trials have established the efficacy of interpersonal psychotherapy (IPT) to treat depression (Cuijpers, Donker, Weissman, Ravitz, & Cristea, 2016; Klerman, Weissman, Rounsaville, & Chevron, 1984; Weissman, Markowitz, & Klerman, 2000). While IPT’s efficacy is evident across numerous studies, several adaptations, and many treatment contexts (e.g., Murphy, Cooper, Hollon, & Fairburn, 2009), far less research has examined how IPT produces symptom relief (Markowitz, Bleiberg, Christos, & Levitan, 2006). Identifying potential mechanisms of IPT’s salutary effects could lead to more refined and effective protocols that maximize the most potent therapeutic ingredients while minimizing inert or iatrogenic elements (Kazdin, 2008).

This study tested two theoretical models of how IPT works. First, IPT might influence the patient’s interpersonal problems that, in turn, alleviate depressive symptoms. Second, the working alliance—a factor common across psychotherapies—might influence the patient’s interpersonal problems which, in turn, alleviate depressive symptoms (see Figure 1).

Please address correspondence to: Timothy Anderson, Ph.D., Department of Psychology, Ohio University; e-mail: andersot@ohio.edu.
Figure 1. Two models involving treatment condition, working alliance, and interpersonal change and depressive symptom change.
Interpersonal Theory and Therapy

IPT is rooted in the interpersonal and attachment theories of Harry Stack Sullivan (1953) and John Bowlby (1969), both of whom emphasized interpersonal and relational factors as fundamental to psychopathology and its treatment. The circumplex model of personality provides a theoretical explanation for how interpersonal traits are arranged in a circular space that is organized by two orthogonal axes, affiliation and control (see Plutchik & Conte, 1997). Classic interpersonal theory and circumplex models explain a wide range of psychopathology (Horowitz, 2004), the measurement of interpersonal problems within circumplex space (Horowitz, Rosenberg, Baer, Ureno, & Villaseñor, 1988), and treatments for a range of disorders, including severe personality disorders (Benjamin, 2006).

IPT shares some core theoretical assumptions of the interpersonal circumplex model, including the notion that functional interpersonal relationships and attachments can mitigate many psychological disorders and, in particular, depression. However, there are important differences. Classic and circumplex interpersonal theories (e.g., Horowitz, 2004; Benjamin, 2006) focus on personality and interpersonal patterns, whereas IPT recognizes, but does not emphasize, the role of personality in maintaining interpersonal patterns. Instead, IPT focuses on current interpersonal situations in relation to psychiatric symptoms. Thus, the theory of “interpersonal problems” in IPT differs somewhat from its classic interpersonal and circumplex theoretical roots.

Interpersonal circumplex theories have focused on broad-based and chronic interpersonal patterns, whereas IPT focuses on the patient’s current social context and the role of current interpersonal problems in the etiology and persistence of major depression (Weissman et al., 2000). Specifically, IPT focuses on addressing an interpersonal crisis in the patient’s current situation to resolve the patient’s major depressive episode, but not necessarily on resolving long-standing interpersonal problematic styles, character pathology, or ingrained interpersonal patterns of behavior (although those frequently improve as a result of treatment; Markowitz et al., 2015).

IPT operates by making meaningful links between the patient’s mood and life circumstances by encouraging tolerance of intense emotions through verbalization and understanding how interpersonal relationships can be improved. By improving communications and interactions with significant others and mobilizing social supports, the patient has a success experience through restructuring his or her interpersonal environment, feels more in control and more hopeful, and emerges from a depressive episode. IPT also focuses on a specific interpersonal problem area or theme. IPT addresses one of four depression-related interpersonal themes: complicated grief, role transitions, role disputes, or interpersonal deficits. IPT targets a single interpersonal problem area as an acute focus for treating depressive symptoms (Weissman et al., 2000). The treatment approach follows naturally from this conceptualization: Ameliorating the interpersonal crisis through IPT should improve mood and environmental mastery and the depressive episode should remit (Markowitz et al., 2006; Weissman et al., 2000).

Putative mechanisms of IPT have received little empirical attention. Increased therapist attention to the IPT interpersonal focus during treatment (i.e., fidelity to IPT protocol) is associated with better outcomes (Frank, Kupfer, Wagner, McEachran, & Cornes, 1991; Frank et al., 2007). In patients treated with IPT for either dysthymia or posttraumatic stress disorder, Markowitz et al. (2006) found that the degree of resolution of the interpersonal focal area correlated with symptomatic improvement, suggesting that the efficacy of IPT relates to the patient implementing changes within the chosen interpersonal focus. Other hypothesized mechanisms include enhancing protective benefits of social support and direct interpersonal contacts (Markowitz, Milrod, Bleiberg, & Marshall, 2009), gaining environmental mastery through the development of social skills, and the ability to reflect on and tolerate emotional reactions to interpersonal situations (Lipsitz & Markowitz, 2013). There is evidence that IPT has ameliorative effects beyond circumscribed relief from depressive symptoms: IPT also improves current interpersonal functioning (Weissman, Klerman, Paykel, Prussoff, & Hanson, 1974). While IPT might operate through the patient’s current interpersonal context, it is plausible that an additional mechanism
of IPT is through its influence on the patient’s longstanding interpersonal patterns of behavior and styles.

Interpersonal Problems

Most clinical and measurement research defines interpersonal problems as characteristics or styles of a person’s interpersonal patterns, a broader definition than the IPT focus on a specific current interpersonal situation (e.g., Horowitz, 2004). For clarity, we henceforth refer to the interpersonal problem area addressed by IPT techniques as the “interpersonal focus” and to the broader and more pervasive interpersonal styles or patterns as “interpersonal problems.” Substantial evidence supports the association between clinical depression and interpersonal problems (e.g., Horowitz, 2004). Individuals suffering from depression engage in patterns of reassurance seeking, which sometimes results in rejection by others (e.g., Joiner, Coyne, & Blalock, 1999). Depressive disorders may not fall into a single interpersonal pattern across people, but vary in communal (e.g., dependency) and agentic (e.g., self-esteem) motives and needs that map onto circumplex space (Horowitz, 2004).

Understanding whether and how different interpersonal problems are related to IPT’s effects on depressive symptoms would facilitate understanding how IPT works in different contexts. The patient’s ability to reduce interpersonal problems has been theorized as a primary treatment mechanism through which IPT reduces depressive symptoms (Weissman et al., 2000; Lipsitz & Markowitz, 2013). Research is needed that characterizes how interpersonal problems (and the reduction of these problems) mediate IPT treatment. To the best of our knowledge, no such research currently exists. What makes this a particularly meaningful research question is that it is unclear if interpersonal circumplex patterns are associated with IPT and its outcome. To address this gap, the current study investigated whether changes in interpersonal problems correlated with IPT’s effects on depressive symptom relief.

While the theory and practice of IPT explicitly focus on linking a specific interpersonal focus (and not personality patterns) to depressive symptoms, it is unknown if longstanding interpersonal patterns and traits might be indirectly involved in this relationship. However, if IPT has only a direct effect on changes in depressive symptoms (without influences changes in longstanding interpersonal patterns), then it could follow that IPT’s effects are circumscribed to mobilizing current interpersonal situations without altering broader interpersonal patterns. Although the timing of our measurement of interpersonal and depressive problems did not allow clear causal inferences or formal statistical determination of mediation (Kraemer, 2016), this research did examine interpersonal problems as a potential mediator in the relationship between IPT and depressive symptom change through an indirect effects analysis (Hayes, 2013).

Working Alliance and Interpersonal Problems

The working alliance has been one of the most robust and consistent process-based predictors of psychotherapy outcomes (Horvath, Re, Fluckinger, & Symonds, 2011; Wampold & Imel, 2015). The working alliance predicts symptomatic improvement across psychosocial (Klein et al., 2003) and specific treatments (Arnow et al., 2013). In regard to interpersonal issues, Howard, Turner, Olkin, and Mohr (2006) found the working alliance was a more robust predictor of depressive outcomes than preintervention levels of interpersonal problems. As a common factor, the working alliance would be expected to facilitate IPT treatment and thereby have a direct effect on the targeted problem, depressive symptoms. Because IPT does not specifically target longstanding interpersonal patterns (Weissman et al., 2000), it is unknown if IPT might also influence changes in these patterns. We propose that the alliance in IPT reduces depression partly by reducing interpersonal problems. Specifically, the patient–therapist bond may be highly salubrious (Horvath et al., 2011), resulting in improved interpersonal functioning, but it may also be influenced by other alliance components. For example, agreement on the goals and tasks of therapy may facilitate the patient’s progress toward IPT treatment goals—specifically, resolving the chosen interpersonal focus of treatment.
Although past studies have correlated the working alliance and interpersonal problems, they show considerable variability in findings. Renner et al. (2012) reported that working alliance was most related to patients who had interpersonal problems in the nonassertive and high affiliative location of the interpersonal circumplex. In contrast, Pavio and Bahr (1998) found the working alliance correlated with the Inventory of Interpersonal Problems (IIP; Horowitz et al., 1988; Alden, Wiggins, & Pincus, 1990) cold, social avoidance, and nonassertiveness, but not the remaining five subscales. Similarly, Muran, Segal, Samstag, and Crawford (1994) found that the interpersonal problems of being cold or dominant negatively correlated with developing a working alliance, whereas being friendly or submissive was positively correlated with working alliance. Little research has examined the association between the working alliance and changes in interpersonal problems during treatment. Thus, it may be useful to consider how alliance is associated with interpersonal problems in IPT.

The Working Alliance and Telephone-IPT (Tele-IPT)

In IPT for depression, the working alliance is expected to directly influence reductions in depressive symptoms, partly through the therapeutic relationship and partly by facilitating work on IPT tasks and goals. Lipsitz and Markowitz (2011) noted that IPT work on the focal interpersonal problem may not necessarily be the primary mechanism through which IPT works and contemplated whether the primary mechanism for IPT might be more common:

Resolving the interpersonal problem might be less essential to IPT than we propose; this framework might simply provide a premise through which to mobilize the patient to work actively and collaborative with the therapist, elucidate the connection between interpersonal factors and symptoms generally, and increase self-efficacy. (p. 1144)

Thus, in IPT, the working alliance might be theorized as follows: (a) a primary contributor to depressive symptom reduction, (b) unrelated to improvement of depressed symptoms, or (c) operating to reduce depressive symptoms via changes in interpersonal problems.

There is a void of research on how working alliance relates to symptom relief in tele-delivered IPT, although research exists on other tele-delivered therapies. One study found poorer therapeutic alliance in tele-therapy than in face-to-face therapy (Greene, Morland, Macdonald, Frueh, Grubbs, & Rosen, 2010). Another found comparable levels of alliance between telephone and in-person treatments (Stiles-Shields, Kwasny, Cai, & Mohr, 2014). Yet another found that the alliance predicted depressive symptom change for tele-administered cognitive behavioral therapy, but not for tele-administered supportive–expressive therapy (Beckner, Vella, Howard, & Mohr, 2007). Heckman et al. (2015) found alliance unrelated to depressive symptom relief in tele-delivered group therapy, with perceptions of group cohesion being more important to depressive symptom relief than group co-facilitator–patient alliance in group tele-therapy.

The Present Study

This study leverages Heckman and colleagues’ (2016) randomized controlled trial (RCT), which found nine sessions of tele-administered IPT significantly reduced depressive symptoms of depressed HIV-infected rural persons compared to standard care (SC). The present study tested two novel, indirect effects models (see Figure 1), neither of which has been tested to date. The first model predicted that tele-IPT would indirectly influence depressive symptom change by affecting interpersonal changes (see Figure 1, Model 1). Because IPT targets current interpersonal situations and issues in treating depression, it was assumed that changes would occur in more broad-based, pervasive interpersonal problems. Thus, we proposed an indirect effect, whereby IPT (relative to SC) had an indirect effect on postintervention depressive symptoms (controlling for preintervention depressive symptoms) via reductions in interpersonal problems.

In the second model, we examined the effects of the working alliance for the IPT group only. This model predicted that the working alliance would influence depressive symptom relief by
reducing interpersonal problems (see Figure 1, Model 2). Because the working alliance involves common in-session interpersonal processes that influence most outcomes for specific treatments (Wampold & Imel, 2015), we hypothesized that the working alliance would directly influence tele-IPT outcomes. It also seemed reasonable that this influence would involve an indirect effect, wherein the working alliance influences depressive outcomes via changes in interpersonal problems.

Method

Patients and Procedures

This study involved 147 patients (75 tele-IPT, 72 SC) from Heckman et al.’s (2016) RCT. Most patients were male (62.0%), with a mean age of 51.9 years (standard deviation [SD] = 10.3). Most were White (73.4%), the remaining self-identified as African American (17.7%), Hispanic/Latino (2.5%), Native American (2.5%), Asian/Pacific Islander (0.6%), and multiracial and others (3.8%). Patients were randomly assigned to either tele-IPT or SC groups after completing preintervention assessments.

Recruitment. Patients were recruited between August 2010 and September 2014 through AIDS service organizations in 28 states. Recruitment brochures were distributed to HIV-infected rural patients through numerous strategies (e.g., face-to-face interactions, mailings) and through listservs and website postings of the Rural Center for AIDS Research at Indiana University.

Potential participants contacted the research office via a toll-free telephone number or a project-specific e-mail address listed in recruitment materials. Research staff provided detailed information to individuals inquiring about the study, described the informed consent process, and gathered preliminary screening information such as age, county of residence, and contact information. County of residence determined the individual’s U.S. Department of Agriculture’s Urban-Rural Continuum Code (U.S. Department of Agriculture, 2015). For individuals satisfying the rurality inclusion criterion, study personnel mailed (or e-mailed) an informed consent form for the individual to sign and return. After receiving signed consent, research staff contacted the individual and conducted a half-hour eligibility screening. Tele-based eligibility interviews administered the Primary Care Evaluation of Mental Disorders (PRIME-MD; Spitzer et al., 1994) and Modified Mini Mental State Examination (Teng & Chui, 1987).

The institutional review boards of all participating institutions approved the project protocol and all patients provided written informed consent. No adverse events were reported during the trial.

Inclusion criteria. Study inclusion criteria were as follows: (a) ≥18 years of age; (b) self-reported diagnosis of HIV infection or AIDS; (c) residing in a county with a rural-urban commuting area code of “4” through “9”; (d) diagnosis of Diagnostic and Statistical Manual of Mental Disorders (4th ed.; American Psychiatric Association, 1994) major depressive disorder (MDD), MDD in partial remission, or dysthymic disorder based on the Mood Module of the PRIME-MD; (e) the patient intended to stay in his or her current residence for ≥1 year; and (f) written informed consent. This study enrolled rural people living with HIV (PLWH) with a unipolar mood disorder diagnosis, not self-reported elevated depressive symptoms, because of the following reasons: (a) IPT was developed for individuals diagnosed with mood disorders; (b) HIV infection and medication side effects can mimic somatic depressive symptoms (interviews differentiated these symptoms); and (c) the pilot RCT had required a full depressive...
diagnosis as an inclusion criterion. For inclusion in the present analyses, it was necessary that patients attended at least one therapy session and have completed the pre- and postintervention assessments.

**Measures**

Patients were mailed a self-administered, preintervention assessment, and self-addressed postage-paid return envelope. Patients were asked to complete the survey in a private location (e.g., their home). Patients received $40 compensation for completing the preintervention and a separate $40 for the postintervention assessments. Tele-IPT patients self-administered the postintervention assessment after their final tele-IPT session, while SC controls completed their postassessments coincident with their time-matched tele-IPT counterparts. All Cronbach’s alphas and test-retest reliability coefficients ($r_{tt}$) derive from current study data. Test-retest coefficients were calculated using pre- and postintervention data from SC controls, who were expected to report few, if any, changes. Measures included in data analyses are described below.

**Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996).** The 21-item BDI-II, the study’s primary endpoint, assessed cognitive, affective, and somatic symptoms of clinical depression during the past week. Self-report responses were assessed along four severity levels (“0” to “3”), yielding a total score from 0 to 63. The BDI demonstrated good internal consistency ($\alpha = .86$) and test-retest reliability, $r_{tt}(61) = .82, p < .001$.

**Inventory of Interpersonal Problems (IIP; Horowitz et al., 1988; Alden et al., 1990).** The 64-item IIP is a self-report assessment of interpersonal distress. Its 5-point scale, ranging from 0 (not at all) to 4 (extremely) describes experiences with a range of interpersonal problems. Items map across eight subscales (eight items per subscale) arranged as a circumplex with two axes. The x-axis is defined by the extent to which problems involve patterns of affiliative and nonaffiliative interpersonal relationships. The y-axis involves patterns of problematic interpersonal relationships that are characterized by dominance and submission. IIP subscales resemble the traditional interpersonal circle, using the same letter codes (see Horowitz, 2004), but focus on the interpersonal content of distress. Subscales are arranged around this interpersonal circle, starting with the positive-end of the y-axis and moving counter-clockwise: Domineering (PA), Vindictive (BC), Cold (DE), Socially Avoidant (FG), Nonassertive (HI), Exploitable (JK), Overly Nurturant (LM), and Intrusive (NO). The IIP has commonly been used as a treatment outcome measure, particularly with interpersonal and personality functioning, and was selected as a core outcome measure (Strupp, Horowitz, & Lambert, 1997). In the present study, IIP scales demonstrated good internal consistency: the eight-cluster subscales range from $\alpha = .69$ to $\alpha = .86$.

**Working Alliance Inventory (WAI; Horvath, 1981; Tracey & Kokotovic, 1989).** The 12 WAI items are rated along on a 7-point continuum, ranging from 1 (never) to 7 (always). WAI items involve three basic components: (a) agreement on therapeutic goals, (b) task agreement, and (c) the bond or emotional collaboration between the patient and therapist. Patients self-reported all items following the fifth therapy session. To facilitate timely collection, a project staff member contacted each patient and administered the WAI over the telephone. WAI scores were completed only in the tele-IPT condition (as there was no therapist in SC). Therapists were unaware of WAI scores. The WAI had excellent internal consistency in this study ($\alpha = .94$).

**Mental health and substance use services utilization.** Patients indicated whether, over the past month, they participated (yes/no) in self-help groups for mental health or alcohol/drug use problems (e.g., AIDS-specific support groups or 12-step programs). Patients specified whether they sought help from any of the following practitioners in the past year for mental health or alcohol/drug use problems (yes/no) and how long ago they had sought help: psychiatrist, psychologist, social worker, counselor, minister/priest/rabbi, or psychiatric nurse. Patients also indicated if they had used a hotline (yes/no) for such problems in the past month.
**Intervention Conditions**

After completing preintervention surveys, patients were assigned to one of two conditions using the Microsoft Excel randomization module. A priori power analyses showed that 70 patients per study arm would yield power >.85 for clinically significant reductions in depressive symptoms on the BDI-II.

**Standard Care (SC) control.** SC controls received no active study treatment but had access to community-based support services available to PLWH (e.g., AIDS-related support groups, prescribed antidepressant medications). No limitations were imposed on patients’ use of psychosocial services outside the RCT.

**Tele-IPT.** Tele-IPT patients received nine weekly, one-hour tele-IPT treatments and had access to SC. A tele-IPT manual for this study (Heckman, 2010), was adapted from the “Manual for Interpersonal Therapy with Depressed HIV-Seropositive Patients” (Markowitz, Klerman, Clougherty, & Josephs, 1993). Sessions 1 and 2 consisted of patient-therapist introductions and an overview of therapy protocol. Tele-therapists and patients explored patients’ depressive symptoms, defined depression as a medical illness with interpersonal consequences, reviewed current interpersonal relationships (the interpersonal inventory), and identified a problematic relationship or life circumstance as the therapeutic focus for the treatment. Therapists framed each patient’s primary focal interpersonal problem area concern in one of four areas: interpersonal role dispute (e.g., conflict with partner); role transition (e.g., loss of employment, moving from an urban to a rural environment, worsening complications of HIV); grief (death of loved one); or interpersonal deficits (chronic difficulties forming or maintaining close relationships). Sessions 3 through 9 addressed this interpersonal focus. Sessions 8 and 9 addressed therapy termination and maintenance of treatment gains (Weissman et al., 2000). More detailed information regarding the administration of tele-IPT and therapist training and supervision is discussed in detail in a previous report (Heckman et al., 2016).

Patients were recruited in blocks of 2, 4, or 6 and randomly assigned to condition using an algorithm that ensured equal cell sizes. Tele-therapists were blinded to patients’ preintervention data, and the investigator who conducted the randomization was blinded to patients’ eligibility screening and preintervention data.

Over the 5-year RCT, 719 individuals telephoned or e-mailed inquiries about the study, 379 satisfied the rural residence criterion, and 305 returned completed informed consent forms. Of the 305 individuals who completed eligibility screenings, 138 did not satisfy depression-related inclusion criteria. Ultimately, 167 individuals meeting inclusion and exclusion criteria were assigned to a study arm.

Although all patients were diagnosed with a PRIME-MD-based depressive disorder in eligibility screenings, 29 (11 tele-IPT and 18 SC controls) had preintervention BDI values <14, below the threshold for mild depressive disorder. To minimize the possibility of a “floor effect” in intervention outcome analyses, and because assessing the efficacy of tele-IPT with nondepressed individuals has questionable utility and external validity, these patients were excluded from analyses.

**Data Analyses**

The IIP-Total score assessed global interpersonal distress and IIP cluster scores were used to test specific interpersonal problems. Because of the number of tests required due to eight cluster scores, a two-pronged strategy was used to narrow the focus of mediational models to specific IIP cluster scales. First, we examined which of the eight interpersonal problems was most relevant to depressive symptoms by calculating the circumplexity of how BDI-II scores mapped onto the IIP circumplex space. Structural summary parameters were calculated for the preintervention BDI to identify their optimal angular location (see Gurtman, 1992; Gurtman, 1993; Gurtman & Balakrishnan, 1998). Structural summary parameters are preferred in this context because they account for the circumplexity of the IIP. The IIP scale emerging from this
analysis (i.e., the scale more pertinent to BDI scores) was then considered for the indirect effects models.

Second, a series of mixed-model analyses of variance (Treatment Condition [tele-IPT versus SC control] by Time [pre- vs. postintervention]) was conducted to determine which of the eight IIP subscale scores changed significantly in response to treatments, thereby reflecting possible mediators of change in depression. Each of the eight interactions was evaluated applying a Bonferroni correction (critical $\alpha = .006$).

To test indirect effects, we conducted a bootstrap (data-resampling) analysis using Hayes's (2013) PROCESS Macro (version 2.13) within SPSS for tests of the indirect and direct effects. Bias-corrected bootstrap confidence intervals (CIs) were generated for testing the indirect effect. The 95% confidence interval (CI) for the estimate of the indirect effect was obtained with 10,000 bootstrapped resamples. The model was statistically significant at the $p < .05$ or $p < .01$ level if the confidence interval did not include zero (Hayes, 2013). This method is currently recognized as the most optimal approach for testing indirect effects because it has lower Type I error rates, relatively greater statistical power, and does not require normal distribution of variables (Shrout & Bolger, 2002). In the first model, both treatment conditions were used. Treatment condition was the independent variable, IIP change was entered as the mediator, and changes in BDI values were entered as the dependent variable. The second model was similar but included only patients who received tele-IPT; working alliance was the dependent variable, IPT change was the mediator, and BDI change was the dependent variable.

Results

Missing Data and Preliminary Analysis

Missing data. Nineteen patients (13 tele-IPT and 6 SC) were excluded from analyses because they either had not completed preintervention BDI and IIP scales ($n = 17$) or left at least 10% of items missing ($n = 2$). An additional six patients were excluded from the analysis of Model 2 due to incomplete WAI values. When questionnaires had missing items constituting < 10% of the total, missing items were replaced via mean imputation ($n = 27$); the vast majority of the 27 had only 1 or 2 missing IIP items ($n = 24$).

Preliminary analyses. Based on circumplexity analyses and “Condition x Time” interactions on the IIP, we identified one IIP cluster subscale for further testing. First, preintervention BDI had an elevation of 0.44, an amplitude of 0.08, an angle of 213.63°, and an $R^2$ of 0.55. We thus inferred that, as expected, BDI-II values were highly elevated (distress). Although low in amplitude (i.e., little interpersonal content), the BDI-II projects toward the Socially Avoidant octant of the IIP (IIP-FG). Second, treatment effects on the eight IIP cluster scales, presented in Table 1, show that change in Socially Avoidant (IIP-FG) interpersonal problems differed significantly between treatment conditions. Given these cluster-level analytic results, we used IIP Social Avoidance for indirect effects analyses of specific interpersonal problems.

Model 1: Treatment Condition, Interpersonal Problems, and Depression

Using both SC and tele-IPT conditions ($1 = \text{Control}; 2 = \text{tele-IPT}$), we constructed a model to examine the influence of Treatment Condition on postintervention BDI-II scores (the dependent variable), mediated by IIP-Total scores. Both postintervention IIP-Total and BDI-II scores were controlled by their preintervention values as covariates. Table 2 presents a summary of the path coefficients and confidence intervals for the direct and indirect effects of these models. Consistent with earlier clinical trial intervention outcome analyses (Heckman et al., 2016), the direct effect of Treatment Condition on BDI-II was significant. In addition, tele-IPT had a significant indirect effect on postintervention BDI-II scores (controlled by preintervention levels) through postintervention IIP-Total (also controlling for preintervention levels), indicating that part of the tele-IPT’s effect on depression was through interpersonal distress. The indirect effect via IIP-Total, however, was largely an artifact of the highly significant association of
### Table 1

**Treatment Group x Time Interactions on Inventory of Interpersonal Problems Cluster T-Scores**

<table>
<thead>
<tr>
<th>IIP Scale</th>
<th>Tele-IPT (n = 62)</th>
<th>Standard Care (n = 65)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preintervention</td>
<td>Postintervention</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>BC</td>
<td>62.0</td>
<td>14.6</td>
</tr>
<tr>
<td>DE</td>
<td>68.1</td>
<td>15.0</td>
</tr>
<tr>
<td>FG</td>
<td>59.5</td>
<td>11.0</td>
</tr>
<tr>
<td>HI</td>
<td>55.1</td>
<td>13.4</td>
</tr>
<tr>
<td>JK</td>
<td>53.0</td>
<td>11.8</td>
</tr>
<tr>
<td>LM</td>
<td>57.1</td>
<td>13.0</td>
</tr>
<tr>
<td>NO</td>
<td>53.1</td>
<td>12.8</td>
</tr>
<tr>
<td>PA</td>
<td>56.0</td>
<td>14.0</td>
</tr>
</tbody>
</table>

**Note.** M = mean; SD = standard deviation; IIP = Inventory of Interpersonal Problems. IIP Cluster Scales: BC = Vindictive; DE = Cold; FG = Socially Avoidant; HI = Nonassertive; JK = Exploitable; LM = Overly-nurturant; NO = Intrusive; PA = Domineering.

a Without correction, p = .035, but ns with correction.

b Without correction, p = .03; all others are ns.

**p < .006.**

interpersonal and depressive symptom reduction (path b) and not via the association of IPT and IIP-Total (path a).

IPT also had a significant indirect effect on postintervention BDI-II scores (controlled by preintervention levels) via postintervention IIP-Social Avoidance scores (also controlling for preintervention levels), indicating that part of tele-IPT's effect on depression was through Social Avoidance. Unlike the above analysis on general interpersonal problems, the indirect effect via social avoidance was not an artifact of one path; it involved significant associations for both Treatment Condition and IIP-T change (path a) as well as IPT and BDI change (path b). Thus, tele-IPT reduced depressive symptoms directly, but also by decreasing interpersonal distress, particularly distress related to social avoidance. In supplementary analyses with the other seven IIP scales, all seven models were nonsignificant (all confidence intervals contained 0). It's notable that the relative size of the significant indirect effect was approximately one third of the size of the direct effect that tele-IPT had depressive symptom reduction.

**Model 2: Working Alliance, Interpersonal Problems, and Depression**

The second model used data only from tele-IPT patients because the WAi is a treatment process measure and therefore irrelevant SC control patients. Partial correlations between WAi, IIP-Total, IIP-Social Avoidance, and BDI-II appear in Table 3. The WAi was negatively correlated with postintervention IIP-Social Avoidance (controlling for preintervention IIP-Social Avoidance), and postintervention IIP-Social Avoidance (controlling for preintervention IIP-Social Avoidance) was positively correlated with postintervention BDI-II (when controlling for preintervention BDI-II).

There were no direct effects of working alliance (assessed at session 5) on postintervention depressive symptoms in tele-IPT patients (controlling for preintervention scores). Although the independent variable in our model (WAi) was not significantly related to the dependent variable (BDI-II), testing the indirect effect does not require the existence of a direct effect (Preacher & Hayes, 2004; Shrout & Bolger, 2002). Because the specific treatment (IPT) had a highly significant direct effect and relatively weaker indirect effect, the analysis of the working alliance (a common factor) provided a unique opportunity to identify the separate contributions of a specific and common factor. Indirect analysis found that the influence of working alliance
Table 2
*Indirect Effects Analyses of Models for Treatment Condition, Working Alliance, Interpersonal Problems, and Depressive Symptoms*

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Total effect</th>
<th>Direct effect</th>
<th>Indirect effect</th>
<th>ESa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IIP-Total</td>
<td>$\beta$ $-3.88^{**}$</td>
<td>$-2.88^*$</td>
<td>$-9.49$</td>
<td>$0.11^{***}$</td>
</tr>
<tr>
<td></td>
<td>95% CI:</td>
<td>$-6.73, -1.03$</td>
<td>$-5.58, -0.19$</td>
<td>$-19.6, 0.63$</td>
<td>$0.06, 0.15$</td>
</tr>
<tr>
<td></td>
<td>IIP-Avoid</td>
<td>$\beta$ $-4.63$</td>
<td>$-3.56^{**}$</td>
<td>$-2.21^{**}$</td>
<td>$0.49^{**}$</td>
</tr>
<tr>
<td></td>
<td>95% CI:</td>
<td>$-7.48, -1.78$</td>
<td>$0.20, 0.78$</td>
<td>$-3.96, -0.46$</td>
<td>$0.20, 0.77$</td>
</tr>
<tr>
<td></td>
<td>WAI</td>
<td>IIP-Total</td>
<td>$\beta$ $-1.63$</td>
<td>$-0.71$</td>
<td>$-5.99$</td>
</tr>
<tr>
<td></td>
<td>95% CI:</td>
<td>$-4.42, 1.15$</td>
<td>$-3.06, 1.63$</td>
<td>$-16.28, 4.32$</td>
<td>$0.09, 0.22$</td>
</tr>
<tr>
<td></td>
<td>WAI</td>
<td>IIP-Avoid</td>
<td>$\beta$ $-1.70$</td>
<td>$-0.41$</td>
<td>$-2.02^{**}$</td>
</tr>
<tr>
<td></td>
<td>95% CI:</td>
<td>$-4.43, 1.03$</td>
<td>$-3.17, 2.35$</td>
<td>$-3.56, -0.48$</td>
<td>$0.15, 1.13$</td>
</tr>
<tr>
<td></td>
<td>Goal</td>
<td>IIP-Avoid</td>
<td>$\beta$ $-2.22$</td>
<td>0.70</td>
<td>$-2.51^{***}$</td>
</tr>
<tr>
<td></td>
<td>95% CI:</td>
<td>$-4.76, 0.32$</td>
<td>$-3.45, 2.05$</td>
<td>$-3.88, -1.13$</td>
<td>$0.09, 1.12$</td>
</tr>
<tr>
<td></td>
<td>Task</td>
<td>IIP-Avoid</td>
<td>$\beta$ $-1.17$</td>
<td>-.01</td>
<td>$-1.75^*$</td>
</tr>
<tr>
<td></td>
<td>95% CI:</td>
<td>$-3.70, 1.36$</td>
<td>$-2.53, 2.51$</td>
<td>$-3.18, -0.32$</td>
<td>$0.18, 1.15$</td>
</tr>
</tbody>
</table>

Note. All values under “total indirect effect” were set to 95% confidence interval and thus estimated $p$-values only were identified if these intervals were significant (if zero is not within the interval). Columns a and b refer to the specific paths of the model in Figure 1. M = mean; ES = effect size; CI = confidence interval. Condition = Treatment Condition (tele-IPT vs. Standard Care); IIP-T = Post-Treatment Inventory of Interpersonal Problems -Total Score (controlled by pretreatment score); BDI = Post-Treatment Beck Depression Inventory (controlled by pretreatment score); IIP-Avoid = Social Avoidance cluster; WAI = Working Alliance Inventory. The dependent variable in all analysis was the BDI.

a ES is the ratio of the indirect effect to the total model.

* $p < .05$  ** $p < .01$  *** $p < .001$. 
Table 3
Means, Standard Deviations and Partial Correlations for Working Alliance, Depressive Symptoms, and Interpersonal Problems

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>BDI-II</th>
<th>IIP Total</th>
<th>IIP Social Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAI Total</td>
<td>6.45</td>
<td>0.83</td>
<td>−.14</td>
<td>−.24*</td>
<td>.39***</td>
</tr>
<tr>
<td>WAI Goal</td>
<td>6.49</td>
<td>0.86</td>
<td>−.18</td>
<td>−.24*</td>
<td>−.41***</td>
</tr>
<tr>
<td>WAI Task</td>
<td>6.26</td>
<td>0.93</td>
<td>−.09</td>
<td>−.27</td>
<td>−.41***</td>
</tr>
<tr>
<td>WAI Bond</td>
<td>6.59</td>
<td>0.96</td>
<td>−.10</td>
<td>−.15</td>
<td>−.23*</td>
</tr>
<tr>
<td>BDI-II</td>
<td>23.00</td>
<td>10.47</td>
<td></td>
<td>.38**</td>
<td>.33**</td>
</tr>
<tr>
<td>IIP Total</td>
<td>93.49</td>
<td>36.70</td>
<td>.38**</td>
<td>−</td>
<td>.80***</td>
</tr>
<tr>
<td>IIP Social Avoidance</td>
<td>13.83</td>
<td>6.73</td>
<td>.33**</td>
<td>0.8</td>
<td>−</td>
</tr>
</tbody>
</table>

Note. M = mean; SD = standard deviation; WAI = Working Alliance Inventory; BDI = Beck Depression Inventory; IIP = Inventory of Interpersonal Problems -Total Score; IIP-Avoidance = Social Avoidance cluster; WAI = Working Alliance Inventory.

*p < .05. **p < .01. ***p < .001.

indirectly influenced postintervention depressive symptoms through reductions in IIP-Social Avoidance. It is important to note that this effect was the result of significant associations for both the working alliance and IIP-Social Avoidance (path a) as well as social avoidance and BDI symptom reductions (path b).

Because only one IIP scale was tested (IIP-Social Avoidance) in planned analyses, we conducted supplementary analyses with the other seven IIP scales (controlling for preintervention scores). All seven models had nonsignificant direct and indirect effects (all confidence intervals contained the value 0). Similar to analyses in Model 1, the indirect effect was nonsignificant when the model included general interpersonal problems as the statistical mediator (IIP-Total) of the working alliance and BDI symptoms reduction association.

Finally, post hoc analyses conducted with WAI subscales tested whether the significant findings could be further specified. Because WAI-Bond was unrelated to postintervention IIP-Social Avoidance (controlling for preintervention IIP-social avoidance levels; see Table 3), this scale was not tested with indirect effects modeling (Shrout & Bolger, 2002). When controlling for preintervention IIP-Social Avoidance and BDI-II scores, WAI-Goal had a negative indirect effect on postintervention BDI-II through postintervention IIP-Social Avoidance (after controlling for preintervention levels of these variables). Similarly, when controlling for preintervention IIP-social avoidance and BDI-II scores, WAI-Task had a negative indirect effect on postintervention BDI-II through postintervention IIP-social avoidance. These indirect effects were from the significant effects of both WAI task and bond to IIP-social avoidance (path a) as well as the association of the symptom change measures (path b). Given that there were no direct effects for involving the Model 2 analyses, it’s perhaps not surprising that the indirect effects for most of the total effect of these models. Specifically, the indirect effects of social avoidance on the WAI-T and BDI relationship account for three-fourths of the total effect. The indirect effect accounted for two thirds of the total effect on WAI-Task and nearly all of the total effect on WAI-Goal was the result of the indirect effect.

Discussion

This is the first study to find that both IPT treatment and the working alliance within tele-IPT indirectly influenced depressive symptom relief through reductions in interpersonal problems. Not only did tele-IPT directly influence the reduction of depressive symptoms, but a significant
portion of these improvements were via concurrent changes in patients' interpersonal problems, particularly via changes in social avoidance. Surprisingly, the working alliance in tele-IPT did not directly affect the targeted reductions in depressive symptoms, but the working alliance influenced reductions in depressive symptoms indirectly and through the reductions made in interpersonal problems, particularly in social avoidance. In fact, the effect of the working alliance on depressive symptom reduction was almost completely indirect and through reductions in interpersonal problems, whereas about two thirds of the total effect of the tele-IPT treatment was direct, though the relatively smaller indirect effect via interpersonal problems still accounted for a significant portion of the total effect. The unique role of the working alliance as a predictor of social avoidance reduction in IPT as well as the more direct influence of IPT in the treatment of depressed, rural PLWH will be considered below.

Of the eight interpersonal problem subscales, only social avoidance significantly decreased in tele-IPT (compared with SC) after applying the Bonferroni adjustment. Nonetheless, this effect might be conceptualized as including a broader style of interpersonal withdrawal. It's noted that subscales bordering on both sides of social avoidance, cold and nonassertive interpersonal problems, were trending in the same direction and were in fact within the less conservative level of significance without adjustment (i.e., critical alpha at \( p = 0.05 \)). Clearly, tele-IPT's effects were specific to social avoidance, which essentially are interpersonal problems that involved dis-affiliating from relating to others in a more passive manner. It is unclear if this finding is driven by the nature of tele-IPT, the nature of this sample, or both.

These results may have implications for considering the relative influences of specific versus common factors in tele-therapy. The fact that the specific treatment was mostly influencing depression through direct effects could be interpreted to suggest that social avoidance played a relatively minor role as a “mechanism” of IPT in this RCT. The improvement in social avoidance problems fits well with the treatment rationale and techniques of IPT, increasing social relatedness by expressing feelings more directly and functionally to important others (Weissman et al., 2000). We suspect that the role of social avoidance within tele-IPT may have been at least as much due to the contextual factors of the current study as it was a mechanism of IPT, specifically how PLWH in highly rural areas engaged in a tele-delivered therapy (see below). Certainly, it is possible that other variables may have accounted for even more of the total effect. Other possible prospects would be the hypothesized mechanisms of IPT proposed by Lipsitz and Markowitz (2013), such as specific interpersonal skills and the ability to tolerate emotions. It’s plausible that those mechanisms accounted for the present results because patients may have learned interpersonal skills through tele-IPT, which decreased their social avoidance.

The lack of a direct effect for the association of the working alliance and depression might suggest to some that the specific effects for the treatment were particularly strong. However, the fact that the working alliance was implicated indirectly through changes in social avoidance might argue for a more unique role for this common factor. That is, patients with interpersonal problems of social avoidance may have had more difficulty engaging in tele-delivered IPT and may have needed the working alliance to engage more the treatment. It is interesting that the indirect effect only involved what might be referred to as the structural components of the treatment: agreements on therapeutic tasks and goals of the IPT treatment (and not the relational bond).

For the present study, agreement on therapeutic tasks would most likely be involve patients' understanding the regular treatment activities of tele-IPT that were introduced by therapists. Thus, it may be particularly important for socially avoidant patients to be thoroughly grounded in these structural parameters of the treatment in order to fully engage and benefit in this tele-delivered version of IPT.

These effects also are consistent with findings on how (and why) some PLWH cope with interpersonally stressful situations. Fukunishi et al. (1997) found that PLWH engage in greater coping behaviors than people living with HIV-seronegative, but that most of these coping behaviors were socially avoidant in nature. Of particular interest, The authors found that this initial response of socially avoidant coping was also associated with increased levels of depressed symptoms. Clearly, these variables may interact in complex ways, yet it is clinically plausible that PLWH may initially cope with their HIV diagnoses through social avoidance without being
clinically depressed. Over extended time periods, however, overreliance on social avoidance may leave one vulnerable to deleterious mental health consequences. While the findings from the present study and those of Fukumishi et al. (1997) are consistent with the theory of IPT and the interpersonal theory of depression (e.g., Joiner et al., 1999), these findings do not implicate a specific causal sequence between changes in depression and interpersonal relating. Thus, it is important to recognize the plausibility that the causal sequence of these variables was not determined (or proposed) by the present study. Thus, it is also plausible that depressive symptom relief may have caused improvement in seeking interpersonal relationships.

Another explanation for the findings might derive from considering the psychological implications of the stigma and social isolation other people in many communities associate with living with HIV/AIDS. Toppenberg, Bos, Ruiter, Wigboldus, and Pryor (2015) demonstrated that in a virtual environment, participants tended to maintain greater physical distances from people believed to have an HIV diagnosis, and that they approached PLWH more slowly and stared at them more frequently (e.g., compared to someone with a broken leg). The telephone contact itself might have been instrumental in reducing patients’ experiences of stigma and decreased social avoidance because tele-therapy generated new opportunities for direct interpersonal contacts with another person (the therapists). This is also consistent with how tele-IPT works because the therapeutic relationship becomes a start to forming meaningful social supports, particularly in patients with more pronounced interpersonal deficits (Weissman et al., 2000).

Resolving social avoidance problems might remove a major psychological obstacle that had previously kept the patient socially isolated. Patients in this clinical trial lived in some of the most geographically isolated regions of the United States, potentially exacerbating perceptions of social isolation. Addressing the psychological barriers of social isolation would plausibly free patients to address and resolve their problems in interpersonal relationships and to seek and find new interpersonal contacts.

Interpersonal problems were not experimentally manipulated or observed, and thus these findings are correlational (Markowitz et al., 2006; Bleiberg & Markowitz, 2007). Although it is theoretically meaningful that changes in interpersonal problems indirectly influence changes in depressive symptoms, it is possible that changes in depressive symptoms caused changes in interpersonal functioning. Thus, our study tested a correlational theoretical relationship among these variables: There was no experimental control of the statistical mediator of these indirect effects.

Equally important, indirect effects in statistical mediational models serve an important role in identifying mechanisms in clinical research (Rucker, Preacher, Tormala, & Petty, 2011), which might be hindered by falsely presuming the need for direct effects, or requiring demonstrations of causality or full mediational control. As such, this study provides initial empirical support for changes in interpersonal problems as a potential mechanism for how tele-IPT works, at least when administered to rural PLWH and comorbid depressive disorders.

The Working Alliance in Tele-IPT

Because study patients were geographically isolated and likely experienced illness-associated stigma, a strong working alliance may have been important in reducing social avoidance and hence reducing social isolation. The lack of a direct effect of the working alliance on depressive symptom outcome was surprising given its well-established link to treatment outcome (Horvath et al., 2011). As noted above, the lack of a direct effect for the working alliance on depressive symptoms might indicate that the efficacy of tele-IPT was less directly dependent to common relational factors and more related to specific IPT techniques (and the defining role of alliance task and goals). It’s interesting that the working alliance influenced depressive symptom changes via social avoidance and that these indirect effects were a relatively large portion of the overall effect.

In contrast, IPT also significantly influenced reductions in depressive symptoms indirectly via social avoidance, but the direct effect of tele-IPT on depressive symptom reduction was relatively greater than the indirect path (about three fourths of the total effect in the model was from the direct influence of tele-IPT). It is conceivable that the common relational influence
of the working alliance within tele-IPT is relatively more influential in relation to work on broader interpersonal styles (as found on the IIP), whereas the interpersonal work within IPT is relatively more directly influential in addressing more specific depressive symptoms. Thus, one might interpret these results as showing that the specific tele-IPT treatment could have independently influenced depressive outcomes without common relational factors. However, other common factors that were not measured (e.g., empathy) may possibly have influenced these findings as well. Heckman et al. (2015) found that common relationship measures varied in their prediction of depressive outcome in tele-delivered group therapy, varying for different forms of measurement and at different points during therapy.

Clinical Implications

The finding that strong alliance can increase the efficacy of tele-IPT by reducing social avoidance in depressed rural PLWH has some clinical implications. Providing tele-IPT likely would be enhanced when considering how a collaborative working alliance might affect the patient's avoidance of interpersonal relationships via decreasing a patient's general isolation, fostering the patient's interest in seeking social supports, resolving disputes rather than avoiding them, and gaining a sense of interpersonal mastery. HIV-associated stigma may be magnified in rural communities in which individuals have less anonymity (e.g., French, Greeff, Watson, & Doak, 2015). The decreased access to treatment and support groups in rural communities perhaps makes HIV-positive individuals feel even more marginalized.

Study findings support a primary tenet of IPT and this tele-IPT adaptation: Reductions in interpersonal problems, particularly reductions in social avoidance, can reduce depressive symptoms in depressed rural PLWH participating in tele-administered IPT. Study data suggest that therapists should provide strategies to reduce social avoidance. IPT therapists, of course, should foster a sound working alliance with patients, specifically attending to agreement on the goals and tasks of therapy. Therapists should monitor the alliance over the course of treatment and address alliance ruptures when they occur to maximize the success of therapy. This may be true particularly when treating depressed HIV-infected rural persons.

Limitations and Future Directions

This study has noteworthy limitations. First, the potential mediator and dependent variables were measured at the same time in these indirect effects models. Researchers should attempt to identify changes in interpersonal problems that occur before the measurement of depressive outcome in order to formally demonstrate mediation. Future research should measure constructs of interest at multiple time points, or use dismantling methodology, to better understand mechanisms of change within tele-IPT for depression. Even so, it is not clear at what session, or stage of therapy, the critical change in therapy would be anticipated. Ideally, both interpersonal problems and symptomatic changes could be assessed at every session, which would facilitate the ability to partial out whether interpersonal changes precede depressive symptom changes. Even with time-lagged measurement strategies, however, it would still be possible for reverse-causality among variables, which can best be addressed by precise theoretical models and experimental controls. Second, because all variables were assessed via self-report, shared method variance may have influenced results. Third, the treatment sample comprised primarily White males, limiting generalizability of study findings.

Future studies might measure the resolution of the IPT interpersonal focus within IPT treatment. Examination of both the IPT focus as well as interpersonal problems from the IIP would have provided an opportunity to compare the influence of the technical as well as the more generic changes made during treatment. The IIP findings in the present study might contribute to future designs that better separate the influences of more IPT-specific interpersonal treatment themes from patterns of interpersonal problems such as those measured by the IIP. Future research would also benefit from measuring other relevant interpersonal constructs such as social skills and social support.
A strength of the present study was the focus on the largely overlooked group of rural PLWH and comorbid depressive disorders. An additional strength was the study's ecological validity. That is, all therapists were licensed and experienced, the tele-IPT training was brief and hence highly transportable to community settings. Finally, although RCTs are often criticized for failing to address how treatments work, this study focused on exploring mechanisms of change in IPT for depression. Identifying these mechanisms allows both researchers and clinicians to customize the application of IPT, hence improving its effects within different contexts, treatment delivery settings, and underserved populations.

Conclusion

Findings indicated that tele-IPT influences depression for rural persons living with HIV/AIDS partly through addressing interpersonal problems, specifically social avoidance. Treatment providers and researchers might also consider that the working alliance might have enhanced usefulness when addressing social avoidance during tele-IPT with this population. Future research should identify strategies for maximizing the effect of tele-IPT by addressing the specific interpersonal needs of patients with HIV who receive tele-therapy in rural areas.

References


