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An Evaluation of Six Brief Interventions that Target Drug-Related Problems in Correctional Populations

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Abstract

Finding brief effective treatments for criminal justice populations is a major public need. The CJ-DATS Targeted Intervention for Corrections (TIC), which consists of six brief interventions (Communication, Anger, Motivation, Criminal Thinking, Social Networks, and HIV/Sexual Health), were tested in separate federally-funded randomized control studies. In total, 1,573 criminal justice-involved individuals from 20 correction facilities participated (78% males; 54% white). Multi-level repeated measures analyses found significant gains in knowledge, attitudes, and psychosocial functioning (criteria basic to Knowledge, Attitude, and Practices (KAP) and TCU Treatment Process Models). While improvements were less consistent in criminal thinking, overall evidence supported efficacy for the TIC interventions.

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Keywords

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INTRODUCTION

As shown in reports on prison growth over the past decade, as many as 85% of federal, state, and local inmates had a history of using illicit drugs regularly, met medical criteria for substance use disorder, or were under the influence of alcohol or other drugs when they committed their crime (National Center on Addiction and Substance Abuse at Columbia University, 2010). Out of the 1.3 million state prisoners in 2005 (Sabol & West, 2008), 20% were being held for drug offenses; and 53% of the 200,000 inmates in federal prisons in 2007 were incarcerated for drug offenses. Correspondingly, the associated cost of managing drug-using offenders is high. States spent nearly $30 billion in 1998 for adult corrections, including incarceration, probation, and parole, of which 81% was spent on substance-involved offenders (National Center on Addiction and Substance Abuse at Columbia University, 2001).

Providing drug treatment in CJ settings has been viewed as an effective approach for addressing the cost-related problems linked to drugs and crime, resulting in an increase in corrections-based treatment in several states during the last decade (Simpson, Knight, & Dansereau, 2004). While these services initially incur additional costs, it is less costly than leaving these problems untreated (Bender, 2005). When compared to no or low intensity treatment (i.e., 1-week of drug/alcohol education), Daley et al. (2004) demonstrated that moderately intense (i.e., 30 outpatient group sessions 3 days a week for 10 weeks) and high intensity treatments (i.e., residential treatment for 6 months) yielded cost savings of 1.8 to 5.7 times the cost of implementing these programs. Based on the usefulness of even moderate-level treatments for drug-using inmates, the results suggest that providing effective and easy to implement interventions would be a notable enhancement to existing services. Therefore, finding ways to augment these treatments – and especially to make low intensive treatment more effective – is significant and a useful goal for corrections-based settings. The collaborative Criminal Justice Drug Abuse Treatment Studies (CJ-DATS)

The National Institute on Drug Abuse (NIDA) recognizes that institutional and community-based treatment programs for correctional populations typically are not well grounded in evidence-based practices. In 2002, therefore, NIDA funded the cooperative agreement for “Criminal Justice Drug Abuse Treatment Studies” (CJ-DATS). Specific objectives included the goal of studying how treatment effectiveness is achieved with regard to the therapeutic, organizational, and managerial processes within correctional systems. The cooperative agreement included nine Research Centers (two that specialize in adolescent services), a Coordinating Center, and NIDA scientists. Major research themes focused on offender risks and needs assessments, treatment interventions and monitoring, community reentry, special populations, and systems integration. Its collaborative framework for conducting studies required involvement of participating treatment providers from at least three CJ-DATS national Research Centers, and the steps for research review, approval, implementation, monitoring, and reporting followed a set of formal guidelines.

The first protocol approved for implementation in CJ-DATS was the Performance Indicators for Corrections (PIC) study. Its findings were published in a special issue of *Criminal Justice and Behavior* (Simpson & Knight, 2007). The multi-center PIC protocol was led by the Texas Christian University (TCU) Research Center and included collaborating teams from

the National Development and Research Institutes, Inc. (NDRI), University of California at Los Angeles (UCLA), University of Delaware, and University of Kentucky. It developed and evaluated instruments for assessing offender functioning. In accomplishing its specific aims, methodological evidence was established across a diverse national sample of correctional treatment settings for these assessments. These instruments focused on client functioning and treatment engagement, criminal thinking patterns, client responses to treatment interventions, strategies for monitoring needs and performance over time, and program functioning and organizational change.

This assessment protocol was accompanied by the development and testing of Targeted Interventions for Corrections (TIC). As with the PIC protocol described above, the TCU Research Center led this study by creating a set of six brief interventions, and was joined by the same team of Centers listed above along with the University of Connecticut to help evaluate them.

Descriptions of the Targeted Interventions for Corrections (TIC) Modules

Each of the Targeted Intervention for Corrections (TIC) modules used the TCU Mapping-Enhanced Counseling strategy (i.e., node-link mapping) which has been shown to be beneficial in treating correctional populations (Czuchry & Dansereau, 2003, 2005; Czuchry, Sia, & Dansereau, 2006; Dansereau, 2005; Dansereau & Simpson, 2009; NREPP: SAMHSA's National Registry of Evidence-based Programs and Practices, 2008). These life skill interventions are designed to be delivered in 3 to 6 sessions, with user-friendly formatting for explaining purposes and procedures.

1. Motivation—TIC-Motivation is based on 4 sessions focused on aspects of cognition that govern decisions to change behavior (Bartholomew, Dansereau, & Simpson, 2006). It relies on visual-communication tools and related cognitive strategies to engage clients in discussions of this topic (see a related TCU manual, *Mapping the Journey,* Dansereau & Simpson, 2005). Participants are encouraged to make a commitment on a specific behavior or attitude they are willing to work on and report on to the group over the course of the intervention. It features a leader's script, with notes and suggested discussion questions for exploring the meaning of motivation and ways in which clients can develop it and put it into action. Information is explored from a strength-based perspective that encourages participants to consider goals on which they are willing to work. In addition to leader guides, handout materials for participants are included at the end of the session. Sections of the manual include Motivation 101 Introduction, Art of Self-Motivation, Staying Motivated, and Making Motivation Second Nature.

2. Understanding and Reducing Angry Feelings—TIC-Anger teaches clients appropriate ways to manage anger so they are more capable of coping with the reality of their situation (Bartholomew & Simpson, 2005c). This module is considered a basic building block because CJ involved individuals often experience anger, particularly in response to their loss of freedom. The 4-session brief therapeutic intervention is designed to help clients learn to understand and respond to anger in more appropriate ways. They learn to identify anger triggers, differentiate between healthy and unhealthy anger, to set goals, to plan strategies for interrupting angry patterns, and to utilize progressive muscle relaxation. Sections of this intervention include: Understanding Anger, Managing Anger in Relationships, Mapping Worksheets, The Aggression Cycle, and Links of Interest.

3. Ideas for Better Communication—TIC-Communication focuses on improving relationships (Bartholomew & Simpson, 2005b). Communication needs may easily take a back seat to more urgent rehabilitation demands within the criminal justice system, but

positive communication within relationships serve as a vital tool for improving client morale and performance. The 4 sessions of this intervention address the concepts of "making amends," forgiving and letting go of resentments, and learning to distinguish between healthy supportive relationships versus unhealthy enmeshed ones. Participants are encouraged to build "connections" with others, develop effective listening and problem solving skills, and are challenged to break down destructive relationship roadblocks. Sections of the manual include Communication Roadblocks, Repairing Relationships, Communication Styles, Mapping Worksheets, and Links of Interest.

4. Unlock Your Thinking, Open Your Mind—TIC-Criminal Thinking includes 4 sessions aimed at addressing the ingrained pattern of criminal thinking (Bartholomew & Simpson, 2005d). Individuals involved in a lifestyle steeped in drug use and other criminal activity are likely to return to the community and continue making poor decisions based on their thinking errors. Joe, Rowan-Szal, Greener, Simpson, and Vance (2010), however, have reported that the negative effects of criminal orientations and thinking can be offset by establishing higher levels of therapeutic engagement during treatment. In this module, therefore, participants are introduced to various types of mind traps and are challenged to address destructive thinking patterns. Discussions driven by the intervention lead participants towards breaking out of distorted thinking and irresponsible behavioral cycles while striving toward the goal of incorporating recovery-appropriate thoughts, actions, and habits. The manual sections include Feelings, Thoughts, and Mind Traps, Road Block to Healthy Thinking, Thinking and Behavior Cycles, Mapping Worksheets, and Links of Interest.

5. Building Social Networks—TIC-Social Networks focuses on qualities clients can look for in friends and family who may aid them in achieving their recovery goals (Bartholomew & Simpson, 2005a). Oftentimes changes in social networks are essential in the recovery process. Upon return to the community, client recovery may be jeopardized if family members or long-time friends are still entangled in a drug-using lifestyle. This intervention walks participants through the steps of taking a peer inventory, making new friends who are drug free, and integrating lifestyle strategies for dealing with old friends and family members who use drugs. The aspects of getting involved in a support group and finding a sponsor also are covered. The 4 sections include Social Networks in Recovery, Support Groups and Your Recovery, When Other Families Use, Mapping Worksheets, and Links of Interest.

6. Common Sense Ideas for HIV Prevention and Sexual Health—TIC-HIV/ Sexual Health equips clients with knowledge and skills necessary to help reduce Human Immunodeficiency Virus (HIV) and sexually transmitted disease (STD) risks (Bartholomew & Simpson, 2004). As HIV is substantially higher among U.S. prison and jail populations than among the general public, it is important that correctional settings address this immense problem. This 3-session intervention provides group participants with up-to-date HIV statistics, facts and fiction about HIV transmission, and engages them in an "eye opening" risk game for vicarious learning. Participants are taught how to act assertively to protect their health through the use of practical role-play scenarios designed to identify core issues while portraying healthy ways to handle sexual risk invitations. The sections of the manual include HIV Update, Acting to Protect Your Health, Mapping Worksheets, and Links of Interest for obtaining further health information.

Plans for the Present Study

The present study presents results of an evaluation of the six brief (3 to 6-sessions each) targeted interventions that address core aspects of addiction treatment and recovery. These

focus on what participants need to work on in order to enhance their early engagement in treatment and their early recovery (Simpson, 2004; Simpson, Knight, & Dansereau, 2004). As described above, they include improving motivation for treatment, controlling anger, opening lines of communication, correcting criminal thinking errors, and improving social networks that enhance recovery. Also, an intervention for improving sexual health is also evaluated as this topic is an important issue and is tied to those raised in the communication intervention. Together, these provide an evidence-based library of targeted treatment interventions that can be used to address drug-related problems in an array of correctional settings.

METHOD

Each intervention was evaluated as part of a randomized control trial in which participants were randomly assigned (individually or by group) to either the designated TIC intervention or the "treatment as usual" control group. More specifically, the TIC groups were comprised of randomly selected treatment program clients in CJ settings who received 3–6 sessions as guided by the TIC manual for each intervention tested. Control group participants completed the pre- and post-tests at the same time as the TIC participants, but the control group received "treatment as usual" instead of the TIC intervention.

Sample

There were a total of 1,573 CJ involved individuals in 20 separate prison facilities from a total network of five CJ-DATS collaborating research centers who participated in the testing of the six treatment modules. Participation was voluntary and informed consent was obtained in accordance with institution review boards overseeing research at each CJ-DATS center and correctional setting involved. Study participants were randomly assigned at each correctional setting to a TIC intervention or Control (either individually or by intact treatment group). Males comprised 78% of the total sample. Approximately half of all participants were white (54%), and the remaining were African American (20%), Hispanic (20%), and other races (6%). Average age was 34 years, and the average number of years of education was 11. In the 6 months prior to incarceration, more than half the sample reported either full-time (49%) or part-time (11%) employment. Nearly three-fourths (73%) were scheduled to be in prison for 7 months or less.

The number of sites used in the evaluation varied by module. Their number and participants by treatment module study were as follows: TIC-Anger (8 sites and 188 clients), TIC-Communication (5 sites and 240 clients), TIC-Criminal Thinking (10 sites and 435 clients), TIC-HIV/Sexual Health (9 sites and 265 clients), TIC-Motivation (11 sites and 287 clients), and TIC-Social Networks (4 sites and 164 clients). While recruitment rates varied by site and by TIC Module, overall they were high (97% or higher for 4 modules); ranging from 99% for the Communication Intervention to 89% for the HIV intervention. Completion rates for the TIC Communication Intervention ranged from 91% (Motivation-TIC) to 98% (Social Networks-TIC). Because not all sites were able to participate in the sequential tests for all six TIC interventions, and the treatment modules were delivered such that there was no overlap in the interventions at each of the sites, the participant samples within a site were independent of each other.

Measures

The effectiveness of the delivery of each intervention was evaluated using Knowledge, Attitudes, and Practices (KAP) Model (e.g., Chatterjee, Bhanot, Frank, Murphy, & Power, 2009; Valente, Parades, & Poppe, 1998) criteria, a frequently used model in communications research. This model posits that a behavioral practice is affected by first

learning about the behavior (exposure), gaining knowledge of it, and developing a positive attitude toward it. Specific attitudes toward particular problems have been found to have predictive value (Bell, Greene, Fisher, & Baum, 1996; Heimlich & Ardoin, 2008).

Because the participants were incarcerated when the post-intervention survey was administered, the focus of the evaluation was limited to cognitive changes as represented by measures of psychosocial functioning and criminal thinking errors in accord with a stage-based treatment model. In particular, in the TCU Treatment Process Model (Simpson, 2004), these cognitive changes represent intermediate but important benchmarks in early recovery. Related evidence shows that changes in knowledge and attitudes are products of the cognitive and behavioral interventions which, if effective, lead to psychosocial changes and hence to behavioral changes in the early recovery stage (Dansereau, 2005; Dansereau, Joe, & Simpson, 1993; Joe, Dansereau, Pitre, & Simpson, 1997; Knight, Simpson, & Dansereau, 1994). Therefore, the present research tested knowledge gained, attitudes changed, and changes in selected psychosocial functioning measures that reflect the cognitive-related goals of the targeted interventions.

TIC Knowledge and Attitude Surveys

In each of the six randomized control trials, a survey of knowledge and attitudes concerning the subject matter of each intervention was given before the intervention began and then repeated a month afterwards to both TIC and Control group participants. Attitude and information surveys for the six interventions were tailored to address the content of each TIC. That is, knowledge items were tailored to the individual interventions; two (TIC-Anger and TIC-Motivation) included 7 items and the other TICs included 5 items. Also, attitudinal items were tailored to each of the six interventions, with TIC-HIV/Sexual Health having the largest number (18 items) and TIC-Communication, TIC-Criminal Thinking, and TIC-Social Networks having the lowest (7 items). TIC-Anger and TIC-Motivation had 12 and 9 attitudinal items, respectively. Therefore, in evaluating the TIC package with respect to changes in knowledge and perceptions toward the topics addressed in the intervention, a two-step approach was used. First, each TIC intervention was evaluated separately and then all six were analyzed together. With regard to the latter, a procedure for combining the data across interventions that was "neutral" to intervention content was developed.

Knowledge—For knowledge items, this meant examining them in the order of lowest to highest percentages of correct responses on each pre-intervention survey. The least correct knowledge item was selected from each survey and labeled "lowest." Subsequently, composites representing the averages of the 2 lowest, the 3 lowest, the 4 lowest, and the 5 lowest correct items were created (5 was the maximum number of knowledge items for four of the interventions). These composites were used to test whether percentages of correct responses on these criteria for which pre-test knowledge was poorest had increased in the post-test for each of the interventions, as well as when combined across the interventions in an overall analysis.

Attitudes—With respect to attitudinal perceptions, a different approach was needed as there were no correct and incorrect responses to these items. Each attitudinal item was an evaluative statement with a 5-point Likert response format [Disagree Strongly (1) – Agree Strongly (5)]. Two approaches were used to create attitude criteria. In the first, a principal components analysis was performed based on data from the pre-intervention survey for each set of attitudinal items (corresponding to the six interventions). Marker items from the first principal component were then used to create a composite to serve as an indicator of overall attitude (PCA attitude); this is because the first component is the linear combination of variables that explains the most variance. Items were scored such that a higher value

represents a more negative attitude on this overall measure. Thus, a lower score was deemed to be more favorable with respect to attitude.

The second approach was based on most negative attitude. Because of the varying number of items for each intervention, these additional indicators were created so that they focused on the item sets of "7 poorest," "6 poorest," "5 poorest," "4 poorest," '3 poorest," "2 poorest," and "poorest" attitude. To accomplish this, the attitudinal items within each intervention were rank ordered by the magnitude of their means as a gauge of their favorableness toward the construct represented by the intervention. Each of the items for these analyses were scored so that a score of "5" reflected poorest attitude.

Client Evaluation of Self and Treatment (CEST)

The TCU *CJ Client Evaluation of Self and Treatment* (CJ CEST; Garner, Knight, Flynn, Morey, & Simpson, 2007; Joe, Broome, Rowan-Szal, & Simpson, 2002) assessment completed as part of the pre-test includes measures of treatment motivation and readiness (Problem Recognition, Desire for Help, Treatment Readiness), psychological functioning (Self Esteem, Depression, Anxiety, Decision Making, Pearlin Mastery (efficacy), and social functioning (Risk Taking, Hostility). Their favorable psychometric properties for a corrections-based treatment sample, including reliability and validity of each of the scales based on 5-point Likert responses, are presented in detail by Garner et al. (2007). An expanded version of the *CJ CEST* used for this study included measures of treatment engagement (Joe et al., 2002). This instrument was re-administered during the post-test (approximately 4 months after the pre-test Intake). Two engagement indicators (Counselor Rapport and Treatment Participation) were of primary interest for the present study because they have been established as core measures of treatment process (Simpson & Joe, 2004). Treatment Participation reflects both cognitive and behavioral aspects of client participation, while Counseling Rapport focused on the therapeutic bond between the inmate and his primary counselor.

Underlying the TIC interventions is the emphasis on using cognitive strategies for making better decisions regarding each of these six areas. Therefore, for purposes of the present study the CEST scale that measured decision making was considered the most relevant measure and used as a criterion in the evaluation. As the TIC interventions addressed management of emotions and social relations, other CEST scales likewise deemed to be relevant and reasonable criteria included Self Esteem, Depression, Anxiety, Efficacy (based on the Pearlin Mastery), Risk Taking, and Hostility.

Criminal Thinking Scales (CTS)

The *TCU Criminal Thinking Scales* (CTS) define measures of Entitlement, Justification, Power Orientation, Cold Heartedness, Criminal Rationalization, and Personal Irresponsibility, representing concepts with special significance in treatment settings for correctional populations (Garner et al., 2007; Knight, Garner, Simpson, Morey, & Flynn, 2006; Walters, 1995; Walters & Geyer, 2005). Entitlement is indicative of the extent to which an individual feels ownership of privileges or benefits that are automatic. Justification reflects a thinking pattern characterized by minimizing the seriousness of antisocial acts and justifying actions based on external circumstances. Power Orientation indicates the need for power and control. Cold Heartedness portrays the lack of emotional involvement that the client has in his or her relationships with others. Criminal Rationalization measures a generally negative attitude toward law and authority figures. Personal Irresponsibility shows a lack of accountability and a general unwillingness to accept ownership for actions and for choices, including a readiness to cast blame on others.

Among these scales, the expectation was that criminal Rationalization, Justification, Power Orientation, and Entitlement in particular might be impacted by the TICs, as they involve aspects of cognitive reasoning and the TICs focused on life skills involving social relationships and communications, the management of emotions, cognitive reasoning and problem solving, and health management.

Analysis

The multi-level design for this study required a complex series of analyses for the suite of interrelated TIC interventions. Because the inmate participants were nested under prison sites, multi-level analysis (SAS PROC MIXED; Raudenbush, Bryk, & Congdon, 2005) was required to test the research hypotheses. This analytic model addressed the issue that clients treated in the same program site tend to be more similar to one another than to those in other program sites, as they are exposed to the same uniqueness in selection attributes, as well as general treatment goals, conditions, and philosophy. The multi-level mixed model approach is more flexible and applicable than simple repeated measures analysis. In particular, it provides a better mechanism for handling missing data (Wolfinger & Chang, 1995). In the present research, the amount of missing data (ranging from 2% to 9%) is tied to the intervention completion rates, as the posttest was given at the end of the last session. To address the question of whether change had occurred as a result of each intervention, a random intercepts multi-level repeated measures model was used, where variations in changes by site and clients were estimated, and with the effects of time (pre-intervention vs. post intervention), intervention (TIC vs. Control), and their interaction being tested as fixed effects.

An overall effect also was obtained for all six TIC interventions by combining all of the data from the six TICs together using a random intercepts multi-level two-way model. In addition to a time effect, the fixed effects that were tested included an overall intervention effect, an intervention type effect (TIC type), and the interaction of the overall intervention effect and intervention type. The overall intervention effect tested whether changes were significantly greater among the TIC participants collectively than among their corresponding controls, while intervention type tested whether the changes differed across the six specific TIC interventions.

Effect sizes (magnitudes of the relationships) were calculated to aid interpretation. For F-tests of within-group change, the effect size estimate based on dependent groups was applied (Cohen, 1988). For addressing between-group treatment differences from the multi-level analyses (Bryk & Raudenbush, 1992), effect size was estimated by using a statistic that paralleled Cohen's f index for linear models. This was $f = [eta^2/(1 - eta^2)]^{.5}$, where $eta^2 = [SS_B/(SS_B + SS_w)]$. SS_B was estimated from the multi-level analyses as the product of (residual estimate) × (df_B) × (F-test for treatment fixed effect), and SS_w was estimated as the product of (residual estimate) × (df_w). The values of df_B and df_w are the numerator and denominator degrees of freedom, respectively, for the F-test for the between treatment fixed effect.

RESULTS

Individual TIC Interventions: Changes in Knowledge

The major hypothesis was that when compared with its control group, participants in each of the TICs – even though very brief interventions when delivered individually – would gain more knowledge, improve more on attitude, and improve more on indicators of early recovery as represented by psychosocial functioning and criminal thinking errors. There was consistent support for this hypothesis, especially in terms of knowledge gains in the repeated measures multi-level analyses. Strong results were found for the analyses of the knowledge

criteria (i.e., when scored as 5 lowest correct items, 4 lowest correct, 3 lowest correct, 2 lowest correct, and lowest correct) for five of the six interventions (all but TIC-Communication). Either a significant intervention effect or a significant interaction of time and intervention effect occurred on almost all of the criterion scoring options. The strongest results occurred for TIC-HIV/Sexual Health, TIC-Anger, TIC-Motivation, and TIC-Social Networks. Both TIC-HIV/Sexual Health and TIC-Anger had significant interactions on all five criteria, while TIC-Motivation had significant interactions on four criteria (the exception was lowest correct item), and TIC-Social Networks had significant interactions on two criteria (lowest correct, 2 lowest correct) and a p-value less than .09 on two other (3 lowest, 4 lowest). As an example of these significant interactions, the corresponding tests for the "4 lowest correct" Knowledge criterion were as follows: for TIC-HIV/Sexual Health [$F(1, 511) = 7.86$, $p < .01$], for TIC-Anger [$F(1, 365) = 7.77$, $p < .01$], for TIC-Motivation [$F(1, 560) = 9.46$, $p < .01$], and for TIC-Social Networks [$F(1, 318) = 2.95$, $p < .09$], respectively. While it had no significant interactions of time with intervention, TIC-Criminal Thinking had significant intervention effects on all five knowledge criteria; e.g. [$F(1, 857) = 10.07$, $p < .01$]. TIC-Communication had some significant time effects but no interactions.

The subsequent simple-effects analyses provided more clear-cut information about knowledge changes for each separate TIC intervention and corresponding control group. They showed significant gains for all six TIC interventions (Anger, Communication, Critical Thinking, HIV/Sexual Health, Motivation, and Social Networks). For the different criteria examined, the simple effects for TIC-HIV/Sexual Health ranged from [$F(1, 511) = 15.79$, $p < .0001$] to [$F(1, 511) = 38.41$, $p < .0001$]. For TIC-Anger, these boundaries were [$F(1, 365) = 6.39$, $p < .05$] and [$F(1, 365) = 12.68$, $p < .01$]. On TIC-Motivation, the tests were from [$F(1, 560) = 2.83$, $p < .09$] to [$F(1, 560) = 5.37$, $p < .05$]. TIC-Social Networks had a low of [$F(1, 318) = 2.95$, $p < .09$] and a high of [$F(1, 318) = 25.24$, $p < .0001$]. TIC-Criminal Thinking ranged from [$F(1, 857) = 5.32$, $p < .05$] to [$F(1, 857) = 11.76$, $p < .001$]. Even on TIC-Communication, simple effects were noted, with the low being [$F(1, 472) = 1.03$, $p < .32$] and the high being [$F(1, 472) = 4.32$, $p < .05$]. In contrast, the changes for their corresponding control groups on all these tests were non-significant, with the exception of those participating in the HIV/Sexual Health study.

Although the simple effects results were highly consistent across the five criteria examined within a given TIC intervention, there were variations in strength of the findings. Some TIC interventions had larger F-tests (TIC-HIV/Sexual Health, TIC-Anger, and TIC-Criminal Thinking) than others (TIC-Communication, TIC-Motivation, and TIC-Social Networks). Rather telling are the corresponding effect sizes (Cohen's D). While they varied across the TIC interventions, they nevertheless were much larger than those in the corresponding control groups. For example, the effect sizes for the interventions were: TIC-Anger (D = .26 to D = .36), TIC-Communication (D =.09 to D = .24), TIC-Criminal Thinking (D = .15 to D = .22), TIC-HIV/Sexual Health (D = .34 to D = .53), TIC-Motivation (D = .07 to D = .20), TIC-Social Networks (D = .20 to D = .57). In contrast, the effect sizes for the control groups ranged from .0 to .18 across all six TIC studies. In review, TIC-HIV/Sexual Health had the strongest effects, as four of the five effect sizes were above .46. While TIC-Social Networks had the highest individual effect size when the criterion was "lowest correct," its effect sizes were generally .30 or less.

With regard to variation in the magnitude of change by treatment delivery site, there were differences depending upon the intervention. Regardless of the knowledge criterion used, site variance for TIC-Anger, TIC-Communication, TIC-Motivation, and TIC-Social Networks was not significant. However, for TIC-Criminal Thinking and TIC-HIV/Sexual Health there were differences across program sites. As expected, there also was significant variation among clients in knowledge changes.

To illustrate the results of these repeated measures multi-level analyses performed separately by TIC intervention, a chart representing the knowledge criteria of "4 lowest correct" is presented in Figure 1. It shows the largest increases from pre-intervention (time 1) to post-intervention (time 2) were in TIC-Anger (10%) and TIC-HIV/Sexual Health (12%). The same pattern of results were observed across all measures of knowledge score changes for TIC interventions. On average, the TIC group gained 7 points across the six interventions while the control group gained 0 points. This translates into a 10% gain for the TIC versus only .3% for the control subjects.

Individual TIC Interventions: Changes in Attitude

The repeated measures multi-level analyses of the attitude data also provided support for efficacy of the TIC interventions.

PC-Attitude—The analysis of the overall attitude score based on the marker variables of the first principal component analysis for the attitudinal items showed it changed (improved) significantly from pre- to post-test (i.e., significant time effects) for three TIC interventions; these were TIC-Anger [$F(1, 364) = 12.94$, $p < .0004$], TIC-HIV/Sexual Health [$F(1, 508) = 6.55$, $p < .02$], and TIC-Motivation [$F(1, 560) = 12.76$, $p < .0004$]. Also, either significant intervention effects or interactions of intervention by time were found for TIC-HIV/Sexual Health and TIC-Motivation. From simple effects, the change was significant for those receiving the intervention – that is, TIC-HIV/Sexual Health [$F(1, 508) = 14.77$, $p < .0001$, ES = .33], and TIC-Motivation [$F(1, 560) = 10.79$, $p < .001$, ES = .28] – but not for those in their corresponding control groups. With regard to TIC-Anger simple effects, both the intervention [$F(1, 364) = 8.04$, $p < .005$, ES = .29] and control [$F(1, 364) = 5.09$, $p < .005$, ES = .24] had significant improvements, but the effect size was larger for the intervention group. Site differences were not an issue in these analyses. Overall, the variance in attitude changes across sites were not significant, but as expected there were significant variation in the changes among clients.

Sets of poorest attitude items—Because the number of attitudinal items differed widely across the interventions, attitude also was investigated in terms of criteria based on equal numbers of attitudinal items. Seven criteria were developed based on sets of 7 items through 1 item, respectively, in which each set was constructed using those n-items with the highest means (representing "poorest attitude"). From the multi-level analyses, similarity was found across the results (especially for sets based on 3 through 7 items). Significant time effects (improvement in attitude) emerged for TIC-Anger, TIC-HIV/Sexual Health, TIC-Motivation, and TIC-Social Networks. Evidence for the significance of the intervention was found for TIC-HIV/Sexual Health, TIC-Motivation, and TIC-Social Networks, as they had either significant intervention or interaction of time and intervention effects. Six of the seven interactions of time and intervention were significant for TIC/Sexual Health, ranging from [$F(1, 507) = 2.56$, $p < .11$] to [$F(1, 507) = 10.38$, $p < .01$]. For TIC-Motivation, two of the interactions were significant {[$F(1, 560) = 1.02$, $p < .32$] and $F(1, 560) = 4.91$, $p < .05$]}, while for TIC-Social Networks five interactions were significant, with boundaries of [$F(1, 318) = 1.34$, $p < .25$] to [$F(1, 318) = 6.89$, $p < .01$]. The TIC-Communication and TIC-Criminal Thinking studies generally did not produce significant changes in attitude, based on the criteria used, although TIC-Communication had three effects that had a p-value less than .10 level and TIC-Criminal Thinking had one.

More telling was the examination of simple effects in the six TIC experiments. Significant improvements in attitude over time were found for those participating in TIC-Anger, TIC-HIV/Sexual Health, TIC-Motivation, and TIC-Social Networks. Specifically, all of the simple effects for TIC-HIV/Sexual Health were significant, [$F(1,363) = 11.12$, $p < .001$] to

[F(1,507) = 34.91, $p < .0001$], as were those for TIC-Motivation, [F(1,560) = 10.07, $p < .01$] to [F(1,560) = 30.14, $p < .0001$]. For TIC-Social Networks, six of the seven simple effects were significant, ranging from [F(1,318) = 8.06, $p < .01$] to [F(1,318) = 14.11, $p < .001$], while for TIC-Anger, five of the seven were significant, going from [F(1,363) = 6.39, $p < .05$] to [F(1,363) = 11.12, $p < .001$]. In these analyses of simple effects, attitude changes were generally not significant for those in the corresponding control groups, with the exception of TIC-HIV/Sexual Health. Even in this case, however, the effect size for change was much larger for those in the TIC intervention. Overall, the effect sizes for sets of three through seven items were in the "small-medium" range for TIC-Anger (.24 to .34) and TIC-Social Networks (.32 to .37), and in the "low medium-medium" range for TIC-HIV/Sexual Health (.38 to .50) and TIC-Motivation (.36 to .46).

Generally, treatment site variance was not significant for the attitude multi-level analyses. The differences in changes on these attitude criteria did not vary significantly across sites for five of the six TICs. Only in TIC-Anger was significant program variation found in the analysis of two of the seven criteria. As expected, there were significant variation in changes among clients in the TICs.

Individual TIC Interventions: Psychosocial Changes

The third part of the KAP model focused on domains of cognitive change as represented in psychosocial functioning and criminal thinking errors. From the simple effects of the multilevel analyses of the CEST scales, significant changes in psychosocial functioning were found for each of the six interventions. Participants in the TIC-Anger, TIC-Social Networks, and TIC-Criminal Thinking interventions had significant improvements on five of the seven CEST scales. For TIC-Anger, these included Self Esteem [F(1,321) = 3.89, $p < .05$], Depression [F(1,321) = 5.31, $p < .05$], Anxiety [F(1,321) = 5.59, $p < .05$], Risk Taking [F(1,321) = 4.19, $p < .05$], and Hostility [F(1,321) = 12.46, $p < .001$]. In terms of TIC-Social Networks, significant findings were for Decision Making [F(1,315) = 7.85, $p < .01$], Self Esteem [F(1,315) = 4.34, $p < .05$], Depression [F(1,315) = 13.70, $p < .001$], Pearlin Mastery [F(1,315) = 4.90, $p < .05$] and Hostility [(F(1,315) = 14.72, $p < .001$]. On TIC-Criminal Thinking, significant changes were on Decision Making [F(1,857) = 10.97, $p < .001$], Self Esteem [F(1,857) = 12.01, $p < .001$], Depression [F(1,857) = 20.78, $p < .0001$], Anxiety [F(1,857) = 12.27, $p < .001$], and Hostility [F(1,857) = 10.60, $p < .01$]. In comparison, the control group had only one significant change (on Self Esteem in the Social Network randomized control study). With regard to the other TIC intervention, TIC-Motivation participants had significant changes on four scales {Decision Making [F(1,559) = 18.17, $p < .0001$], Self Esteem [F(1,559) = 11.96, $p < .001$], Depression [F(1,559) = 14.05, $p < .001$], and Pearlin Mastery [F(1,559) = 15.01, $p < .0001$]}, while TIC-Communication had three {Self Esteem [F(1,471) = 6.44, $p < .05$], Depression [F(1,471) = 4.56, $p < .05$], Anxiety [F(1,471) = 4.24, $p < .05$]}, and TIC-HIV/Sexual Health had two {Self Esteem [F(1,504) = 14.29, $p < .001$], Anxiety [F(1,504) = 16.17, $p < .0001$]}. There were no significant changes for the control group in the TIC-Motivation study, and only one for TIC-Sexual Health (Self Esteem). In contrast, there were two significant changes for the control group in the TIC-Communication analyses (Decision Making, and Anxiety). (Detailed tables of these results are available on request from the authors.)

In review, as these interventions emphasized the use of cognitive strategies for making better decisions regarding each of these six areas that dealt with management of emotions and social relations, it was expected there would be significant improvements in the CEST Decision Making scale. Indeed, this hypothesis was supported for participants in TIC-Motivation, TIC-Criminal Thinking, and TIC-Social Networks, and marginally so for TIC-Anger (where the change was significant at $p < .06$). Other CEST psychosocial functioning scales examined as reasonable criteria included Self Esteem, Depression, Anxiety, Efficacy

(Pearlin Mastery), Risk Taking, and Hostility. Participants in the six TIC interventions generally had significant changes in psychological functioning, particularly on Self Esteem and Depression, and to a lesser extent on Anxiety. Social functioning changes were inconsistent, although participants in TICs for Anger, Criminal Thinking, and Social Networks significantly reduced their scores on Hostility. For all tests, the effect sizes for the TIC interventions varied between small (D < .10) to medium (D = .42). However, when the change was significant, the effect size was at least in the small to medium range.

With regard to program site differences in psychosocial functioning changes, these variations were not significant for any of the CEST scales examined. As anticipated, however, there was significant variation in changes among clients for related measures of early recovery.

Individual TIC Interventions: Criminal Thinking Error Changes

Simple effects analyses found there were significant changes in criminal thinking errors for the intervention participants as well. TIC-Anger led with significant decreases on the CTS measures of Entitlement [F (1,320) = 4.40, $p < .05$], Justification [F (1,320) = 10.39, $p < .01$], Rationalization [F (1,320) = 5.69, $p < .05$], and Power Orientation [F (1,320) = 7.31, $p < .01$]. Findings for the TIC-Social Networks {Justification [F(1,315) = 8.47, $p < .01$], Rationalization [F(1,315) = 7.20, $p < .01$], Power Orientation [F(1,315) = 24.10, $p < .0001$]} and TIC-HIV/Sexual Health {Justification [F(1,503) = 9.37, $p < .01$], Rationalization [F(1,503) = 9.16, $p < .01$], Power Orientation [F(1,503) = 13.01, $p < .001$]} interventions followed with changes on three of the same four scales. Interestingly, even though the TIC-Communication and TIC-Criminal Thinking interventions did not show changes in attitudes, these two interventions did produce decreases in criminal thinking errors (Justification and Power Orientation): TIC-Communication {Justification [F(1,470) = 9.00, $p < .01$], Power Orientation [F(1,470) = 8.06, $p < .01$]} and TIC-Criminal Thinking {Justification [F(1,854) = 7.71, $p < .01$], Power Orientation [F(1,854) = 21.78, $p < .0001$]}. When the changes were significant, the corresponding effect sizes were small to medium.

Overall TIC Interventions Effect

In assessing the overall effect of the interventions, a multi-level model was used that combined data from all six separate analyses. The effects evaluated were time, intervention (i.e., combined TIC effects), TIC type (a categorical variable representing each intervention), and all interactions. Test of intervention served as the primary indicator of the overall intervention effect. In addition, the test of TIC type indicated whether the dependent variable (i.e., change measure) differed across the six interventions, the test of the interaction of intervention by time addressed whether changes differed with respect to the intervention and control groups, the test of the interaction of intervention by TIC type provided information as to whether the differences between each intervention and its control differed over the six TICs.

Results showed site variance was generally significant for most of the measures examined (knowledge criteria, attitude criteria, CEST scales, and CTS scales). The test for TIC type was significant for all of the knowledge and attitude criteria, but not for CEST and CTS measures. This was expected because the knowledge and attitude outcomes tended to have different mean values across the six TIC interventions. That is, each intervention was not equally likely to produce the same result. With regard to the effects of time, intervention, and their interaction, these are reviewed below under each outcome domain. The simple effects of outcome changes by intervention and control group are perhaps the most relevant as they address overall changes for these two groups. A summary of the tests for site variance and the fixed effects (time, intervention, and interaction of time by intervention) for

all of the knowledge criteria, attitude criteria, CEST scales, and CTS measures therefore are summarized in Table 1.

Knowledge—The fixed effects results for knowledge outcomes show there were significant time, intervention, and intervention-by-time interactions. The simple effects are very telling as all of the changes from pre-intervention to post-intervention on knowledge criteria were significant for TIC participants, but not significant for their corresponding controls.

In each case, TIC participants improved significantly, with the difference being 5 points for the overall average, 6 points for "lowest 5," 7 percentage points for "lowest 4," 8 points for "lowest 3," 10 percentage points for "lowest 2," and 15 percentage points for the "lowest" correct item.

Attitude—The fixed effects results for attitude criteria were similar to those for knowledge, but with a few noticeable differences. Similarities included highly significant changes for time and generally significant effects for intervention and the interaction of intervention-with-time. (For intervention and the interaction of intervention-by-time, all criteria with the exception of the "highest" and "highest 2" criteria were significant.) The differences were found in the simple effects results. Intervention participants were also found to change significantly on attitudes, but the control group likewise was found to change significantly on some attitude criteria as shown in Table 1. However, the effect sizes corresponding to these changes were much smaller for control than for intervention groups.

Means for measures of attitude indicated TIC participants changed more favorably than control participants. For the principal component overall composite, the intervention groups averaged 4% change compared to 1.5% for the controls. On the other attitude criteria, the average amount of change was 6.4% for the intervention participants and 2.4% for control participants.

Psychosocial functioning—Overall significant time effects were found for the CEST scales measuring Decision Making, Self Esteem, Depression, Anxiety, and Efficacy (as measured in the Pearlin Mastery). More importantly, there were significant interactions of intervention-by-time for these same CEST scales. Simple effects showed significant improvements on these CEST measures for the TIC intervention participants. There also were significant changes on Decision Making, Self Esteem, and Depression for the controls, but the effect sizes were much smaller for controls than for the intervention participants.

Criminal thinking scales—The overall fixed effects for the CTS analyses were not significant.

DISCUSSION

Whether judged by the analyses of each TIC separately or by all the data from the six TICs combined, a clear body of evidence emerged for efficacy of these targeted interventions. Using criteria basic to the KAP Model and the TCU Treatment Process Model, a broad pattern of significant gains were found in knowledge, attitudes, and selected psychosocial functioning measures that reflected cognitive-related goals of the interventions. The first two criteria – knowledge and attitude – are fundamental to communications research (KAP Model), while psychosocial functioning is vital to early recovery in drug treatment research as represented by the TCU treatment model (Hiller, Knight, Saum, & Simpson, 2006; Simpson, 2004; Simpson & Joe, 2004). While the present research was limited to in-prison

participants, future research will need to examine the relationship between TIC participation and post-release behavioral outcomes.

Variations in the efficacy results for these six TIC interventions occurred across the knowledge, attitude, and psychosocial functioning criteria. Analyses of several different configurations of the knowledge measures showed improved knowledge gains in each of the six interventions, while there was no evidence of consistent knowledge gain in the corresponding control groups based on these criteria. The strongest gains, when gauged by effect size, occurred among participants in TIC-HIV/Sexual Health and TIC-Anger, while the smallest gains were for those in TIC-Motivation and TIC-Communication. For the latter interventions, it should be noted that a ceiling effect may have been a factor, as very high percentages (almost 80%) of participants had correct responses on their pre-intervention tests.

With regard to attitude changes, significant improvements occurred for those participating in TIC-Anger, TIC-HIV/Sexual Health, TIC-Motivation, and TIC-Social Networks, while in the corresponding control groups, significant change was found only for those in the TIC-Anger experiment. However, the pre-treatment means on attitude were highly positive and compressed for Motivation, Social Networks, and HIV/Sexual Health. Changes in attitudes related to the Communication and Criminal Thinking interventions did not achieve significance.

As evidence has shown, changes in psychosocial functioning are crucial to early recovery (e.g., Simpson & Joe, 2004). The present study identified brief interventions that improved aspects of cognition (Decision Making) and psychological well being (Self Esteem, Depression, Anxiety, and Efficacy) which are important psychological functioning indicators of the early recovery stage. While three of the interventions (TIC-Criminal Thinking, TIC-Motivation, and TIC-Social Networks) were effective in improving Decision Making, all significantly improved psychological well being. Specifically, there were significant improvements in three of these four scales in each of the six interventions. On the other hand, specificity of impact was suggested by the fact that improvements on social functioning (as measured by Risk Taking and Hostility) were limited (as theoretically appropriate) to TIC-Anger, TIC-Criminal Thinking, and TIC-Social Networks interventions.

In addition to psychosocial functioning, another set of important criteria for this population involves criminal thinking, representing a dynamic type of cognitive risk found to be correlated with static risk factors (e.g., Walters, 2003) and to criminal behavior (e.g., Gendreau, Goggin, & Law, 1997; Gendreau, Little, & Goggin, 1996). The current findings show significant improvements in criminal thinking for five of the six TIC interventions. Perhaps not surprising, TIC-Motivation did not result in significant criminal thinking changes. The most consistent decreases on criminal thinking were for the scales measuring Justification and Power Orientation. Another criminal thinking measure, Rationalization, also was found to be changed in three of the interventions (TIC-Anger, TIC-HIV/Sexual Health, and TIC-Social Networks). These findings indicate specificity of effects consistent with intervention objectives.

Overall, the evidence suggests changes in criminal thinking were less consistent than for knowledge, attitudes, and psychological functioning. When analyzed individually by intervention type, significant improvements were found in scores on Justification, Power Orientation, and to some extent Rationalization. However, Personal Irresponsibility, Cold Heartedness, and Entitlement were generally unchanged. Indeed the combined analysis across all TICs show there were no significant effects for these scales.

An important limitation of this research is that the data are self-reported. Although efforts were made to ensure confidentiality, response bias may still be present on some attitude and CJ-CEST and CJ-CTS measures. This bias appeared less likely for these measures considering the fact that the control group scores generally did not change significantly from pre-to-post intervention on most of those criteria. Specificity of the changes noted above also argue for measurement credibility. In terms of sampling, the extent to which the participants are fully representative of all CJ involved individuals cannot be certified. To be eligible for the research, potential study participants had to have received a referral or mandate from a correctional authority to participate in a treatment program, have enough time remaining in treatment to complete the intervention, and consent to participate. The number of correctional sites participating in each TIC randomized trial also differed, with only four participating in Social Networks compared to eleven for Motivation. Participant sites also had to have clinical (policy) approvals to randomly assign subjects or cohorts to the study conditions, and to be able to recruit a minimum of 84 clients. As a result, some facility configurations and small prison-based treatment settings were not represented.

Despite these limitations, the results of the current research contribute balanced evidence for a number of brief interventions that promise to be useful to prison-based treatment where a tiered system is usually employed. This model offers varying levels of treatment based on the severity of the addiction and sentencing constraints. In this state correctional system, Tier 1 is drug education, Tier 2 is a modified TC for short-term offenders, Tier 3 is a modified TC and drug intervention for long-term offenders, and Tier 4 is work release. Previous research has shown that moderate to intense treatment programs in prison not only can be effective, but also cost-effective, relative to drug education alone or no treatment alternatives. Therefore, part of the significance of the current study is that it not only identifies brief intervention options for more structured (e.g., Tier 2 through Tier 4) prison-based treatments, but they also represent building blocks that could be introduced for enhancing the less effective Tier 1 programs. With regard to the latter, the TIC interventions are user-friendly, manual-guided, and short (averaging 4 sessions each), thereby fitting into a timeframe common for Tier 1 programming options. More importantly, these basic modules address issues underlying many of the major problems faced by drug users who are considering treatment by tackling motivation, communication, anger, criminal thinking, social networks, and HIV/sexual health. The two interventions for correcting criminal thinking errors and improving social networks in particular are fundamental to preventing recidivism. Sexual health, especially as it relates to sexually transmitted diseases and HIV, also is an important issue as it is related to issues of communication, anger, and social networks.

Effect sizes of the interventions often were reported as being in the small to medium range, depending upon the criterion used. However, these are based on an intervention-specific research design (and using randomized trials). That is, clients in this study received only one of the six interventions tested. In practice, it is envisioned that multiple TICs should be used in forming a strategic treatment package in prison treatment, based on an assessment-guided triage decision or in a sequential set designed to have cumulative impact.

Support for this type of “plug-and-play” application using multiple TICs in fact comes from a recent study by Roque and Lurigio (2009) using this same set of brief interventions with probationers awaiting placement in community-based drug treatment. In short, these TIC interventions were used as the curriculum for a low-intensity service intended to enhance admission and engagement rates for clients awaiting formal and more intensive treatment. In their study, random assignments were not possible but findings showed participation in this treatment readiness program increased by five-fold the probationer’s subsequent chances of entering formal treatment. In addition, the level of participation achieved was related to

length of stay and completion of formal treatment, leading to the conclusion that these TIC interventions "primed clients to be more receptive and committed to drug treatment" (p. 755).

These behavioral results for the TIC interventions reinforce and expand evidence for their effectiveness reported in the present study. They imply that by adapting TICs to staff skill levels, providing competent implementation training and monitoring, and ensuring leadership and broader organizational supports, systems-change seems possible across different correctional settings. Overall, the current research suggests that, by using stage-based planning with mission-centered and practice-based assessment and intervention resources, steady progress can be made and sustained in prison treatment effectiveness. Importantly, both growing the level of understanding and emphasis on recovery-oriented interactions among client, provider, and institutional factors need to continue.

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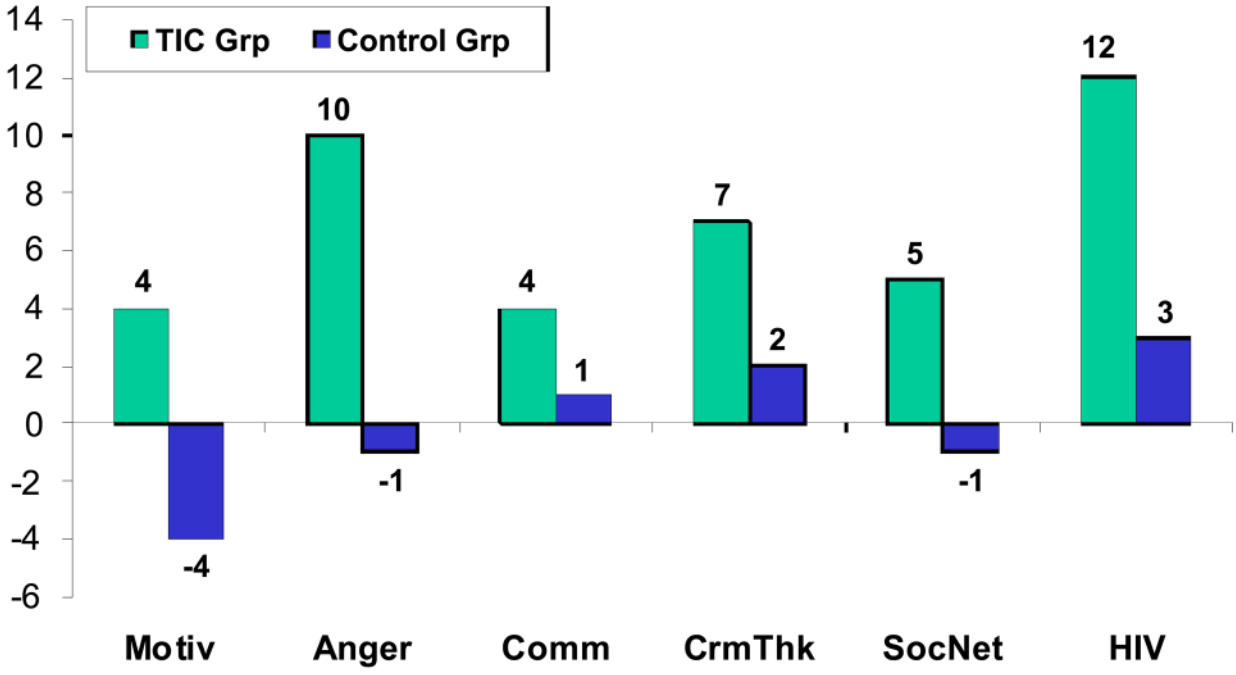

p Levels for –						
Time (T)	ns	<.05	<.10	<.01	ns	<.0001
Intervention (I)	<.01	ns	ns	<.01	ns	<.01
Interaction (TxI)	<.01	<.01	ns	ns	<.10	<.01

Figure 1.
Summary of percentage improvement results based on pre- to test scores for "4 lowest correct" knowledge items in each intervention.

TABLE 1

Summary of Results from Overall Mixed Model Analysis Combining TICs

		Fixed Effects			Simple Effects	
Outcome	**Site**	**Time (T)**	**Intervention (I)**	**T × I**	**TIC Intervention**	**Control**
Knowledge						
Average	.003 *	8.07 **	6.70 **	5.54 *	13.54 ***	.12
5 Lowest	.003 **	16.79 ****	11.94 ***	13.19 ***	30.00 ****	.11
4 Lowest	.003 **	18.06 ****	11.85 ***	16.44 ****	34.62 ****	.02
3 Lowest	.003 **	20.31 ****	6.65 **	16.15 ****	36.45 ****	.12
2 Lowest	.004 **	25.65 ****	9.52 **	17.42 ****	42.69 ****	.40
1 Lowest	.014	4.50 *	3.78 †	2.31	6.65 **	.18
Attitude						
Principal Component	.013 **	14.20 ***	10.92 ***	3.06 †	15.30 ****	2.03
Highest 7	.016 ***	29.72 ****	14.52 ****	8.08 **	34.69 ****	3.37 †
Highest 6	.020 ****	20.74 ****	18.98 ****	4.45 *	22.35 ****	2.97 †
Highest 5	.022 ***	37.69 ****	11.41 ***	6.29 *	37.71 ****	6.53 *
Highest 4	.023 ***	42.36 ****	11.83 ***	9.03 **	45.63 ****	6.09 *
Highest 3	.031 ***	39.62 ****	8.62 **	7.38 **	40.91 ****	6.35 *
Highest 2	.037 **	19.33 ****	3.14 †	3.17 †	19.19 ****	3.40 †
Highest 1	.045 **	4.35 *	2.44	1.26	5.18 *	.46
CEST						
Decision Making	.894 *	31.85 ****	3.39 †	7.48 **	35.48 ****	4.18 *
Self Esteem	1.527 **	46.57 ****	5.60 *	7.68 **	46.47 ****	8.14 **
Depression	2.279 **	49.10 ****	4.37 *	10.38 **	52.85 ****	7.09 **
Anxiety	3.640 *	15.75 ****	.62	1.86	14.35 ***	3.36 †
Pearlin Mastery	.239	4.46 *	1.31	11.49 ***	15.20 ****	.81
Hostility	5.408	.45	.15	.07	.44	.08
Risk Taking	3.043 *	.76	.11	.54	1.30	.01

		Fixed Effects			Simple Effects	
Outcome	**Site**	**Time (T)**	**Intervention (I)**	**T × I**	**TIC Intervention**	**Control**
CTS						
Entitlement	2.439**	.06	1.93	5.99*	2.45	3.59†
Mollification	2.762	2.19	.17	.81	2.85†	.17
Rationalization	5.652†	2.55	.33	.15	1.98	.73
Personal Irresponsibility	2.765**	.59	.56	1.73	2.19	.15
Cold Heartedness	3.291**	2.41	2.09	.20	2.03	.60
Power Orientation	3.778	1.19	.03	.12	1.04	.28

† $p < .10$,

* $p < .05$,

** $p < .01$,

*** $p < .001$,

**** $p < .0001$

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