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A Brief Assessment for HIV Risk: The TCU HVHP Form

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Abstract

Targeted HIV screens may help identify some risk-related concerns of drug-using offenders. The present study describes the Texas Christian University HIV/Hepatitis Risk Assessment (TCU HVHP) form, a 19-item self-report instrument measuring HIV and hepatitis risks based on a sample ($N = 1,056$) of offenders in eight prisons. Principal components analysis indicated four scales (Injection Risk, Condom Attitudes, Sex Risk, and AIDS Concern) with reliable psychometric properties with coefficient α reliabilities ranging from .72 to .88. Concurrent validities indicated the four scales were related to motivation for treatment, level of drug use, psychosocial functioning, and criminal thinking, although the patterns varied by gender. The TCU HVHP Form should be attractive to programs needing a brief assessment measuring HIV risk behaviors, attitudes toward condom use, and concerns about acquiring and transmitting HIV.

Keywords

HIV; hepatitis; offenders; screening; gender

Introduction

Approximately 50,000 new cases of HIV are identified annually (Centers for Disease Control and Prevention, 2013), with males comprising 79% of these cases. Among males, male-to-male sexual contact and heterosexual contact with a person known to have or to be at high risk for HIV infection accounted for nearly 90% of new infections. Among females, 86% of new infections were through heterosexual contact with someone known to have or to be at high risk for HIV infection. While the percentage of newly infected through injection drug use is much smaller than through sexual contact, the number of individuals is still

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Authors' Note

Interpretations and conclusions in this article are entirely those of the authors and do not necessarily reflect the position of National Institute on Drug Abuse, National Institutes of Health (NIDA/NIH) or the Department of Health and Human Services. More information (including data collection instruments that can be downloaded without charge) is available on the Internet at www.ibr.tcu.edu, and electronic mail can be sent to ibr@tcu.edu.

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substantial ($n = 3,766$), with transmission by injection being higher for females (14%) than for males (6%; Centers for Disease Control and Prevention, 2013).

To add to the complexity, gender differences in the rates of HIV/AIDS among incarcerated individuals are distinctly different from the pattern found in the general public. Although men account for 3 times as many cases of HIV/AIDS than women in public sector, among incarcerated individuals, women who use illicit drugs and are involved in the criminal justice system are at elevated risk of contracting HIV. Currently, the prevalence of HIV among women in the general population is 0.2% and in prison is 1.9% (Maruschak, 2012). Much of this risk is associated with injection drug use (Altice et al., 2005; Tortu, Beardsley, Deren, & Davis, 1994) and unprotected sexual encounters (Quinn & Overbaugh, 2005).

In addition, HIV risk behaviors have been found to differ by gender in regard to beliefs about condoms, attitudes toward their use, and sexual risk behavior (Calsyn et al., 2013; Mizuno et al., 2007).

It is also important to understand how HIV risk behaviors are correlated or related to psychosocial functioning. Mental health symptoms have been associated with higher numbers of risk behaviors including prostitution, use of IV drugs, and choice of high-risk sex partner (Stiffman, Doré, Earls, & Cunningham, 1992). Patients with comorbid psychiatric and substance abuse problems have been found more likely to share a needle, have sex for money or gifts, have sex with an IV drug user, and report being raped (Dausey & Desai, 2003). Furthermore, they are especially at high risk for HIV infection because of a higher likelihood of engaging in high-risk behavior. In a randomized controlled trial, individuals with severe mental illness and substance use disorder were found to have had high levels of participation in and acceptance of core services and were more likely to be tested for hepatitis B virus (HBV) and hepatitis C virus (HCV), and to be immunized against hepatitis and reduce their substance abuse, although they showed no reduction in risk behavior, were no more likely to be referred to care, and showed no increase in HIV knowledge (Rosenberg et al., 2010).

Women offenders especially have complex histories of abusive relationships, including physical, sexual, and emotional abuse in childhood and adulthood (Carlson, Shafer, & Duffee, 2010; Grella, Stein, & Greenwell, 2005; Salisbury & Van Voorhis, 2009). Their histories frequently reveal intersections between unhealthy relationships, psychological problems, and substance abuse (Salisbury & Van Voorhis, 2009). These patterns of sexual risk behaviors often resume after women offenders reenter their communities (Khan et al., 2008), making this a critical time for intervention efforts.

Ultimately, understanding the HIV risk behaviors of offenders when they return to the community is crucial to the formulation of prevention and for intervention efforts within prison settings.

Emphasis on the use of condoms and the use of clean needles has been the focus of many HIV prevention programs, and data collected on related behavioral indicators have been critical in determining their impact on HIV risk. Behavioral data have generally been gathered through retrospective self-reports of risky drug use and sexual risk behaviors that

occurred prior to an intake interview. While this information is important, collection of behavioral data in a routine prospective manner would be useful in assessing reductions in HIV risk behaviors among drug users. As noted by Copersino, Meade, Bigelow, and Brooner (2010), a brief questionnaire using a standard quantity-frequency approach covering the last 30 days could gather similar information as compared to the lengthier timeline followback procedure.

Brief interviews, however, must carefully consider the number of questions, how the questions are worded, and response options. A review of 56 studies addressing condom usage and sexual risk behavior (Noar, Cole, & Carlyle, 2006) concerning responses that should be considered for collecting HIV-related information concluded that, when measuring condom use, providing several response alternatives can give reasonable insight into how often the individual uses condoms and that this generally is better than asking the question as a dichotomous variable. Additionally, the study found that recall periods for HIV-related data greater than 3 months should be used with caution until more research validates these longer periods. Delineating partner type and sexual behavior might increase confidence in the meaningfulness of the data. The review also noted that nearly all of the condom-use measures were single item measures and that researchers should use multi-item scales to address the issue of measure reliability.

The HIV/Hepatitis Risk Assessment (HVHP) instrument was originally based on a longer version: the AIDS Initial Assessment/AIDS Follow-up Assessment (AIA/AFA), which focused on prevention of HIV transmission (e.g., Camacho, Bartholomew, Joe, Cloud, & Simpson, 1996; Camacho, Brown, & Simpson, 1996; Camacho, Williams, Vogtsberger, & Simpson, 1995; Joe & Simpson, 1993; Stephens, Simpson, Coyle, & McCoy, 1993). After having been found to be useful in previous research, the form was repackaged into a brief, one-page, self-report instrument consisting of 19 items and known as the Texas Christian University HIV/Hepatitis Risk Assessment (TCU HVHP Form). It provides selective information on HIV and hepatitis risks associated with injection drug use, sexual activities, attitudes toward condom use, and health concerns about AIDS. The four areas addressed by this form provide measures useful for assessing injection and sex risk behavior in the previous 30 days and collect key information on attitudes toward condom use in sex-risky situations and concerns about getting HIV/AIDS, both of which may be useful in guiding behavioral change to lower risk in this area.

Hypothesis

The aims of this present study are to (1) provide psychometric information on the TCU HVHP Form, (2) provide normative data for offenders in drug treatment, and (3) demonstrate concurrent validity by examining relationships that exist between HIV risks and health (both mental and physical), motivation for treatment, drug use, psychological functioning, social functioning, and criminal thinking, with a particular focus on gender differences.

Method

Sample and Procedures

This study used secondary data from the TCU Institute of Behavioral Research's Disease Risk Reduction (DRR) project (R01DA025885, W. E. K. Lehman, principal investigator). All of the prison-based treatment programs were classified as minimum security and operated as stand-alone treatment facilities. As part of the research protocol, study participants completed the TCU HVHP instrument as part of a larger battery of screening tools. Five participating facilities were all-male units and three were all-female units. Treatment program duration ranged from 6 to 12 months, and offenders volunteering for the study signed DRR-informed consent documents approved by the TCU Institutional Review Board. In total, the sample consisted of 1,056 inmates participating in eight prison-based treatment programs. These included 565 males (54%) and 491 females (46%). Whites comprised 50%, Blacks 24%, and Hispanics 22% of the sample. The average age was 34 years. Weekly drug use included alcohol (29%), marijuana (29%), crack cocaine (12%), cocaine alone (9%), methamphetamine (18%), heroin alone (7%), downers (7%), and other opiates (9%).

Measures

HVHP scales—The scales measuring HIV risk were derived from the TCU HVHP Form (see Table 1), which is an assessment of HIV/AIDS risk (Simpson et al., 1994). Based on a sample of 1,056 forms, a principal components analysis of the 19 items identified four scales: Injection Risk, Condom Attitudes, Sex Risk, and AIDS Concern.

Injection Risk was measured using 5 items asking frequency of use (1 = *none* to 5 = *over 30*) and number of different people in the prior 30 days (1 = *none* to 5 = *over 30*). Questions dealt with needle use “dirty” needle use, shared works (cooker, cotton, rinse water), and noncondom sex with someone who injected drugs.

Four items comprised the Condom Attitudes Scale. These asked about likability of using a condom, condoms interrupting the mood during sex, forgetting to use condoms during sex, and unnatural feel to using condoms during sex.

The Sex Risk Scale consisted of 4 items: two asked about frequency of noncondom sex and noncondom sex with individuals who traded sex for money, drugs, or gifts; and two asked about number of sex partners overall and number of sex partners while the respondent was high on drugs.

AIDS Concern consisted of 4 items that measured concerns about exposure to AIDS, possibility of getting AIDS or hepatitis, wanting to change behavior to avoid AIDS or hepatitis, and concerns over giving AIDS or hepatitis to someone else.

Items for Condom Attitudes and Sex Risk were answered on a 5-point Likert-type scale, with the following responses: 1 (*disagree strongly*), 2 (*disagree*), 3 (*uncertain*), 4 (*agree*), 5 (*agree strongly*). Scores for each scale were calculated by averaging responses to its corresponding set of items and multiplying by 10 to rescale the range from 10 to 50.

TCU Client Evaluation of Self and Treatment (CEST) Scales—The scales measuring psychosocial functioning were based on the TCU CEST (Simpson, Joe, Knight, Rowan-Szal, & Gray, 2012), which included four one-page forms: TCU MOTForm, TCU PSYForm, TCU SOCForm, and TCU ENGForm. Item responses used the same disagree/agree format as that described above. Three scales were used from the TCU MOTForm: Problem Recognition (PR), Desire for Help (DH), and Treatment Readiness (TR). Each of the three scales had satisfactory internal reliabilities: PR (coefficient $\alpha = .90$), DH (coefficient $\alpha = .81$), and TR (coefficient $\alpha = .84$). Five scales were used from the TCU PSYForm: Self-Esteem (SE), Depression (DP), Anxiety (AX), Decision Making (DM), and Expectancy of Non-relapse (EX). The internal reliabilities for these scales also were satisfactory: SE (coefficient $\alpha = .76$), DP (coefficient $\alpha = .81$), AX (coefficient $\alpha = .85$), DM (coefficient $\alpha = .78$), and EX (coefficient $\alpha = .78$). The TCU SOCForm comprises four scales: Hostility (HS), Risk Taking (RT), Social Support (SS), and Social Desirability (SD). Each of these scales also was reliable: HS (coefficient $\alpha = .84$), RT (coefficient $\alpha = .80$), SS (coefficient $\alpha = .83$), and SD (coefficient $\alpha = .75$).

TCU health scales—Health information was collected using the TCU HLTHForm, comprised of two sections. The first section has questions regarding health problems covering the 12 months prior to intake in 10 categories: (1) stomach problems or ulcers, (2) bone/joint problems, (3) kidney infection or problems, (4) bladder infection or problems, (5) liver or gallbladder problems, (6) intestinal or bowel problems, (7) heart disease or problems, (8) sexually transmitted disease, (9) skin disease or skin problems, and (10) other medical or physical problems. Each health problem area was asked to be rated as to whether the individual had any of these problems/types of diseases: (1) none of the time, (2) a little of the time, (3) some of the time, (4) most of the time, and (5) all of the time. With this response format, a measure was created that addressed the depth of perceived problems in each of these health areas. The index of “any physical health problems” was the count of problems for which the individual reported a response other than “none of the time.”

The second part of the HLTHForm addressed mental health as represented by the Kessler Psychological Distress Scale (K10; Kessler et al., 2003). This scale consists of 10 items and measured mental distress. It was developed in 1992 to screen for general symptoms of psychological distress common across psychiatric conditions, and its score has been shown to be related to Composite International Diagnostic Interview diagnoses of AX and affective disorders (Andrews & Slade, 2001; Kessler et al., 2003). The K10 scale scores can range from 10 to 50; and based on the cutoffs used by Andrews and Slade (2001), four categories for severity interpretation are defined as *likely well* (10–19), *likely mild disorder* (20–24), *likely moderate mental disorder* (25–29), and *likely severe mental disorder* (30–50; Rowan-Szal, Joe, Bartholomew, Pankow, & Simpson, 2012).

Trauma scale—Psychological distress was another area examined in relation to the HVHP measures. The TCU TRMAForm contains the post-traumatic stress disorder (PTSD) Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993) and is used as another indicator of psychological health in the current study. Based on the PCL scoring algorithm, the resulting scores can range from 17 to 85, with various studies recommending scores of

30, 44, and 50 as possible cutoffs for identifying individuals with PTSD diagnosis. Weathers and colleagues (1993) found that a cutoff of 50 predicted a PTSD diagnosis among combat veterans with a sensitivity of .82 and a specificity of .84 compared with a structured clinical interview, while Blanchard, Jones-Alexander, Buckley, and Forneris (1996) found a cutoff of 44 had improved sensitivity of .94 and specificity of .86 for females. Other studies of females recommended a cutoff as low as 30 (e.g., Walker, Newman, Dobie, Ciechanowski, & Katon, 2002). The PCL is constructed so that it also permits insight into different aspects of this disorder, including reexperiencing, avoidance and psychic numbing, and hyperarousal (Rowan-Szal et al., 2012).

TCU Criminal Thinking Scales (CTS)—The TCU CTSForm is designed to measure “criminal thinking.” The six CTS include Entitlement (EN), Justification (JU), Power Orientation (PO), Cold Heartedness (CH), Criminal Rationalization (CN), and Personal Irresponsibility (PI), which represent concepts with special significance in treatment settings for correctional populations. All but one of the six scales were found to have reliabilities above .70: EN (coefficient $\alpha = .86$), JU (coefficient $\alpha = .80$), PO (coefficient $\alpha = .83$), CN (coefficient $\alpha = .80$), PI (coefficient $\alpha = .73$), and CH (coefficient $\alpha = .67$; see Knight, Garner, Simpson, Morey, & Flynn, 2006).

Drug use severity and drug use—The TCU Drug Screen (TCUDS II) was used to measure drug use severity. The first part of this instrument consists of 9 items that are used to determine level of drug use severity. Classification criteria for drug use dependency parallel the *Diagnostic and Statistical Manual of Mental Disorders* (Third edition, Revised) criteria, based on any combination of three “positive responses” out of the nine scores comprising the composite (Knight, Simpson, & Hiller, 2002). It has a coefficient α reliability of .87. The second part of the TCUDS II form asks frequency of use for 14 categories of drugs.

Results

Psychometrics

As shown in Table 2, each of these HIV risk scales had a coefficient α reliability in the acceptable range: Injection Risk ($\alpha = .88$), Condom Attitudes ($\alpha = .84$), Sex Risk ($\alpha = .80$), AIDS Concern ($\alpha = .72$). Also, a separate principal components analysis of each of the set of items for these scales found only a single eigenvalue exceeding 1.0 (Injection Risk, 3.73; Condom Attitudes, 2.68; Sex Risk, 2.60; AIDS Concern, 2.16), thereby providing support for the unidimensionality of each scale. A confirmatory factor analysis of the items modeling four factors yielded an acceptable solution, $\chi^2(110) = 688.73$, normed $\chi^2 = 6.26$, Goodness-of-Fit Index (GFI) = .93, Comparative Fit Index (CFI) = .94, Standardized Root Mean Square Residual (SRMR) = .060, and Root Mean Square Error of Approximation (RMSEA) = .071 (.066, .076).

Normative Data: HIV Risk Among Subjects

For the total sample, very little Injection Risk behavior was reported (Table 2). The mean on this scale was only 12.4 (out of a possible range from 10 to 50). The third quartile score was

10, which means at least 75% reported no Injection Risk. The mean on Sex Risk also was below 20. Its first quartile score also was 10, meaning that 25% of the sample reported no sex risk behavior. In contrast, the upper 25% reported engaging in risky sex behaviors on multiple occasions (third quartile score was 22.5). Even more serious was the finding that many in the sample were likely to be at risk because of their negative attitudes toward the use of condoms in HIV sex-risky situations. At least half of the sample had a score of 27.5 or higher, which suggests that they probably did not use condoms when performing multiple HIV sex risky behaviors for the previous 30 days. Correspondingly, at least a third of the sample reported on the AIDS Concern Scale some concerns about getting HIV, AIDS, or hepatitis.

Gender Differences

The response distributions on these four HIV risk scales were similar for males and females. Mean differences on Injection Risk (1.3), Condom Attitudes (1.9), Sex Risk (.9), and AIDS Concern (.2) were not significant. Males and females were different on Condom Attitudes, with males having a higher mean (28.6) compared to females (26.7), $F(1, 1053) = 9.10, p < .003$; and on Injection Risk, where the mean for males was 11.8 and for females was 13.1, $F(1, 1053) = 10.16, p < .002$. That is, males were more likely to dislike using condoms than females, as their corresponding mean and quartile scores were higher than those for females. However, those in the upper quartile of both genders were likely to endorse items saying they don't like to use condoms. In this sample, females reported higher Injection Risk than males did, although the differences were in the upper part of the distribution, as the first, second, and third quartiles were the same for the males and females for this measure.

The genders did not differ significantly on means for Sex Risk and AIDS Concern. The distributions of scores on these two HIV/AIDS scales measuring sex risk and AIDS concern also were similar for males and females; they both reported some sex risky behavior. The third quartile score was 22.5 for both males and females, indicating that those scoring in the upper quartile reported performing some risky sex behavior in the 30 days prior to entering the facility. For AIDS Concern, the distributions for males and females found the upper quartiles reporting being concerned (a score of over 35). On this scale, the third quartile for males was a score of 35 or higher and females 38 or higher, suggesting that they "agree" they could get or give AIDS or hepatitis to others.

Validity

Concurrent validity of the HIV risk scales from the TCU HVHP Form was assessed by examining their correlations with data collected at treatment entry, including client background, motivation, psychological functioning, social functioning, mental and physical health, criminal thinking, and drug use and severity. The correlational relationships of the HIV risk scales were examined separately for the males (Table 3) and females (Table 4). Because of the large sample size ($N = 1,056$), the effect sizes for small ($r = .10$), medium ($r = .30$), and large ($r = .50$) denoted by Cohen (1988) provide a useful guide for interpreting these correlational results.

Correlations of HIV Risk for Males

Demographics—White males were found to be at higher HIV risk on both Injection Risk and Condom Attitudes than non-White males, while being a Black male was negatively related to both Injection Risk and Condom Attitudes. When compared with being a non-White male, being a White male also was negatively correlated with AIDS Concern. Age was related negatively to Sex Risk and positively to AIDS Concern, with younger males having higher scores on Sex Risk and lower scores on AIDS Concern Scale. Overall, the demographic relationships that were significant were generally in the small effect size range (.10–.19).

Motivation—For males, HIV risk was related positively to motivation for treatment, with those having more risk also having stronger motivation for treatment, especially in the area of PR. AIDS Concern had the strongest and most consistent relationships with motivation (correlations ranging from .11 to .17) among the HIV scales, followed by Injection Risk. Sex risk had the weakest correlations with motivation.

Psychological and social functioning—Males' psychological functioning was strongly related to the HIV risk measures, particularly in terms of Injection Risk and Condom Attitudes, which had correlations closer to the .22 range. Generally, those having higher HIV risk had lower scores on SE, were likely to report poorer DM, and were likely to have lower Expectations of being drug free in the future. They also consistently reported higher DP and AX scores. Additionally, Sex Risk in males was correlated with AX and RT measures. Social functioning scales also were correlated with overall HIV risk. Higher HIV risk (mainly Injection Risk and Condom Attitudes) was related to higher RT, higher HS, and lower SS, with the majority of these significant correlations being in the “small to medium” effect size range.

Health—For males, Injection Risk and Condom Attitudes were both positively related to physical health issues, psychological distress (K10), and PTSD. Of the other HIV risk measures, Sex Risk and AIDS Concern were both related to PTSD scores and, to a lesser degree, physical health issues. Neither measure was significantly correlated with mental health issues (K10).

Criminal thinking—For males, the CTS were most highly correlated with Condom Attitudes Scale. Those males with lower scores on Condom Attitudes tended to report higher scores on criminal thinking, especially on the PO, Rationalization, PI, and JU scales. The PO Scale also was significantly correlated with both Injection Risk and Sex Risk scales. The CH Scale was positively correlated with Injection Risk and negatively related to AIDS Concern (higher CH predicting lower AIDS Concern). Overall, where significant, higher scores on CTS were associated with higher HIV risk scores.

Drug use—For males, all four of the HIV risk measures were positively related to drug use severity, but only Injection Risk and Sex Risk were significantly correlated with drug use frequency. Of the four measures of HIV risk, Injection Risk and Sex Risk had the highest

correlations, with males with more severe drug use scoring higher on these two HIV risk factor scales.

Correlations of HIV Risk for Females

Demographics—White females were found to be at higher risk on Condom Attitudes than non-White females; being a Black female was negatively related to both Injection Risk and Condom Attitudes. Being a White female was also negatively correlated with Sex Risk and AIDS Concern; that is, they had less concern about AIDS and had lower Sex Risk scores. Age was negatively related to Condom Attitudes, with younger participants having lower scores on Condom Attitudes Scale. Across demographic comparisons, the relationships that were significant were generally in the small effect size range (.10–.15).

Motivation—For females, HIV risk was related to motivation for treatment, with those having higher risk scores also having stronger motivation for treatment, especially in the area of PR. AIDS Concern had the strongest and most consistent relationships, with some of the correlations near the “medium” effect sizes range. Both Injection Risk and Sex Risk also were correlated significantly with motivation. Condom Attitudes had the weakest relationships with motivation but was significantly correlated with the PR and DH scales.

Psychological and social functioning—Like the male sample, females’ psychological functioning was strongly related to all four HIV risk measures. For females, all four scales were correlated significantly with all of the psychological and social functioning scales with the exception of Condom Attitudes with the SS scale. Generally, those having higher HIV risk had lower scores on SE, had higher DP and AX scores, and were likely to report poorer DM and to have lower Expectations of being drug free in the future. Social functioning scales also were correlated with HIV risk. Higher HIV risk was related to higher RT, higher HS, and lower SS.

Health—For females, Injection Risk, Sex Risk, and AIDS Concern were positively related to mental health scales including psychological distress (K10) and PTSD. Condom Attitudes was only related to psychological distress scores. Physical health issues were not correlated significantly with any of the HIV risk measures.

Criminal thinking—For females, the CTS were related to Condom Attitudes, Sex Risk, and AIDS Concern. Females with higher HIV risk tended to report more criminal thinking errors, especially higher scores on JU, EN, PI, PO, and to a lesser extent, Rationalization. Overall, where significant, higher scores on the CTS were associated with higher HIV risk scores. The JU Scale had the highest correlations with all scales (ranging from .14 to .24). The CH Scale was related only to Condom Attitudes (higher CH predicting lower Condom Attitudes scores).

Drug use—For females, all four of the HIV risk measures were positively and significantly related to both drug use severity and drug use frequency. Injection Risk, Sex Risk, and AIDS Concern had the highest correlations, indicating that females with more severe drug use also scored higher on these HIV risk scales.

Discussion

This study examined psychometric properties of the TCU HVHP Form, which measures current HIV-injection risky and HIV-sex risky behaviors, attitudes toward condom use, and concerns about acquiring and transmitting AIDS. It was expected that this form, which was based on the AIA/AFA and which had been successfully used to study HIV risk previously, would have satisfactory psychometric properties in a large sample of incarcerated, drug-using offenders. Indeed, the coefficient α reliabilities of these four scales from this instrument ranged from .72 to .88, and the principal components analysis of each scale revealed a single eigenvalue above 1.0. Gender differences in HIV risk also emerged for the Injection Risk and Condom Attitudes scales. Males had higher scores on the Condom Attitudes Scale compared to females; that is, they reported higher resistance to condom use. In terms of Injection Risk, the opposite was true, with females scoring higher on this scale compared to the males. However, both genders scored in a relatively low risk range on these measures.

For the males, the highest numbers of significant correlations were related to the Injection Risk and the Condom Attitudes scales. More specifically, the pattern of correlations suggested an overriding theme of risky behavior, including general RT and risks associated with current drug use or expectations for future drug use. This is consistent with the data presented by Calsyn and colleagues (2013) indicating males demonstrating predominately risky behavior and females demonstrating risky relationships. Males who scored higher on the TCU HVHP scales had lower expectations of being drug free in the future. This was consistent with the correlations of these scales of HIV risk with drug use severity and frequency of drug use at treatment intake. For males, all four of the HIV risk measures were positively related to drug use severity. This is important due to the fact that drug use severity has been found to be associated with a higher likelihood of rearrest (Du, Huang, Zhao, & Hser, 2013).

HIV risk and general psychological issues also were examined, particularly with respect to psychological health, as represented by positive relationships with DP, AX, and psychological distress as measured by the K10, and to an indicator of PTSD as measured by the Psychological Checklist. Correspondingly, there were negative relationships with measures of SE and DM. For male participants, HIV risk was associated with the Injection Risk and Condom Attitudes scales; female participants had more consistent relationships across all four HIV risk measures. In other words, the Sex Risk and AIDS Concern scales were correlated with other indicators, such as motivation, psychosocial functioning, drug use severity, and criminal thinking. For the males, the only indicator consistently correlated with AIDS Concern was motivation for treatment. The difference in patterns of correlations within HIV risk scales is consistent with the more complex relationship women bring to treatment. For example, women offenders often have complicated histories of abusive relationships, including physical, sexual, and emotional, which have been found to be related to criminal activities and accompanying risk behaviors (Grella et al., 2005; Peters, Strozier, Murrin, & Kearns, 1997; Staton-Tindall et al., 2011). Recently, significant progress has been made in developing HIV prevention interventions for incarcerated women specifically targeting reducing risky relationships, with the anticipation of producing ultimately lower

rates of unprotected sexual encounters (Knudsen, Staton-Tindall, Oser, Havens, & Leukefeld, 2014; Leukefeld et al., 2012; Staton-Tindall et al., 2011).

Overall, the correlational analyses between the HIV risk and client background measures point to the complexity that drug treatment providers face when treating recovering drug users who are also at risk of HIV due to their attitudes and risky behaviors. The analyses showed that those who reported greater HIV risk were poorer in psychological health and social functioning as well as somewhat more likely to score higher on measures of criminal thinking. For a criminal justice-based drug treatment population, measures of criminal thinking and cognitive orientations are highly pertinent in the evaluation of rehabilitation barriers and progress (e.g., Gendreau, Goggin, & Law, 1997; Gendreau, Little, & Goggin, 1996; Walters, 2006; Yochelson & Samenow, 1976). While offenders' prognosis for treatment can be considered complex as they present with multiple problems, the results of this study suggest that these higher risk individuals may be more motivated for drug treatment. This assertion is accentuated by the AIDS Concerns composite being significantly correlated with higher treatment motivation.

One limitation of the current study is that it employed self-reported measures. Nevertheless, studies have shown that self-report measures can be as good as, or even better than, "objective" measures when administered correctly (e.g., Knight, Rowan-Szal, Hiller, Chatham, & Simpson, 1995). Another limitation is that the data were collected from eight treatment facilities in only two southwestern states; this may limit its representativeness to offenders in other regions.

In summary, the TCU HVHP Form is part of the series of one-page TCU forms that, when used together, provide information on client background, motivation, psychological functioning, social functioning, criminality, criminal thinking errors, and health. When combined with collateral records (physical/mental health status, urine test results, information on criminality), this information and lengthier clinical assessments can help to optimize treatment placement and help identify problems that may benefit from specialized interventions. Efficient and systematic data collection and management procedures are particularly important in view of the growing reliance on drug courts and correctional systems to address high-volume treatment needs of offender populations.

The brief TCU HVHP Form should be attractive to those programs in need of an instrument that measures HIV risk behavior, attitudes toward condom use, and concerns about acquiring and transmission of AIDS. The form also would be useful for those who are evaluating efforts to change HIV risk behaviors, as the scales address modeling steps needed in behavioral change: motivation for change, attitudes that must be changed, and behavioral indicators of change. One of the most valued scales in this form may be the Condom Attitudes Scale, which had good psychometric properties and distributional properties that showed a large percentage of respondents having negative attitudes toward the use of condoms even in HIV sexually risky situations. Future studies may want to look at targeted interventions designed to change attitudes toward condom use.

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Table 1**TCU HVHP Form—HIV and Hepatitis Risk Scales.**

Items for Injection Risk Scale (1 = *none* to 5 = *over 30*)

How many TIMES did you—

INJECT drugs with a NEEDLE?

Use DIRTY NEEDLES or COOKING WORKS (needles, syringes, cooker, cotton, or rinse water that someone else used and were not cleaned with bleach)?

Use the same COOKER, COTTON, or RINSE WATER that someone else had already used?

Have SEX with someone who had INJECTED drugs and did NOT use a latex condom?

How many different PEOPLE—

Did you share “DIRTY” NEEDLES or COOKING WORKS with?

Items for Condom Attitudes Scale (1 = *strongly agree* to 5 = *strongly disagree*)

How much do you AGREE or DISAGREE

You don't like to use a condom on either yourself or on your sex partner?

Condoms interrupt the mood when having sex?

You usually forget about using a condom when having sex?

It feels unnatural to use a condom when having sex?

Items for Sex Risk Scale (1 = *none* to 5 = *over 30*)

How many TIMES did you—

Have SEX (vaginal, oral, or anal) and did NOT use a latex condom?

Have SEX with anyone who TRADED SEX for money, drugs, or gifts and did NOT use a latex condom?

How many different PEOPLE—

Did you have SEX with (including vaginal, oral, or anal)?

Did you have sex with while you were high on drugs?

Items for AIDS Concern Scale (1 = *strongly agree* to 5 = *strongly disagree*)

How much you AGREE or DISAGREE

You have concerns about your possible exposure to the AIDS virus or hepatitis?

It is possible that you could get AIDS or hepatitis?

There are things you want to change to help avoid getting AIDS or hepatitis?

You have concerns that you could give AIDS or hepatitis to someone else?

Scoring instructions for obtaining scale scores:

Sum the response values of all non-missing items for the scale

Divide the sum of item responses by the number of items included (yielding an average)

Multiply this average by 10 (in order to rescale the score so it ranges from 10 to 50)

(e.g., an average response of “2.6” for a scale therefore becomes a score of “26”)

Note. TCU HVHP = Texas Christian University HIV/Hepatitis Risk Assessment

Table 2

Summary of Means, Distributions, and Psychometric Statistics for TCU HVHP Assessment by Total Sample, Gender.

Scales	Mean	Mean Range	SD	First Quartile	Second Quartile	Third Quartile	Interquartile Range	Coefficient α Reliability
Total ($N = 1,056$)								
Injection Risk	12.39	11.08–15.01	6.55	10.0	10.0	10.0	0	.88
Condom Attitudes	27.69	24.67–35.16	10.76	20.0	27.5	37.5	17.5	.84
Sex Risk	17.03	14.01–21.07	8.82	10.0	12.5	22.5	12.5	.80
AIDS Concern	28.75	24.72–30.79	10.10	20.0	30.0	35.0	15.0	.72
Male ($n = 565$)								
Injection Risk	11.80	11.08–13.41	5.54	10.0	10.0	10.0	0	.83
Condom Attitudes	28.57	26.71–35.16	10.49	20.0	30.0	37.5	17.5	.83
Sex Risk	16.60	14.26–18.37	8.92	10.0	10.0	22.5	12.5	.81
AIDS Concern	28.86	24.72–29.76	9.59	22.5	30.0	35.0	12.5	.68
Female ($n = 491$)								
Injection Risk	13.07	11.17–15.01	7.50	10.0	10.0	10.0	0	.91
Condom Attitudes	26.69	24.67–30.15	11.00	17.5	25.0	35.0	17.5	.84
Sex Risk	17.50	14.01–21.07	12.70	10.0	15.0	22.5	12.5	.80
AIDS Concern	28.63	25.31–30.79	10.66	20.0	27.5	37.5	17.5	.75

Note. TCU HVHP = Texas Christian University HIV/Hepatitis Risk Assessment.

Table 3

Males—Correlations of HVHP Scales With Background and Other Measures: Motivation, Psychological Functioning, Mental Health, Criminal Thinking, Social Functioning, Drug Use, and Physical Health.

Correlations of Background With HVHP Scales						
Background	Mean	SD	HVHP Scales			
			Injection Risk	Condom Attitudes	Sex Risk	AIDS Concern
Demographics						
White	40%		.19****	.13***	-.02	-.11**
Black	29%		-.14***	-.14***	.05	.01
Age	34.1	9.4	.06	-.01	-.13***	.09**
Motivation						
Problem recognition	3.43	0.93	.15***	.16***	.08*	.17****
Desire for help	3.96	0.75	.09**	.06	.07	.15***
Treatment readiness	3.82	0.76	.01	-.05	.02	.11**
Psychological functioning						
Self-esteem	3.69	0.70	-.12**	-.21****	.01	-.10**
Depression	2.16	0.73	.14***	.22****	.05	.02
Anxiety	2.46	0.81	.13***	.25****	.14***	.04
Decision making	3.71	0.56	-.21****	-.22****	-.05	.02
Expect free drug	4.18	0.68	-.18****	-.21****	-.12**	-.10**
Social functioning						
Risk taking	3.11	0.73	.19****	.27****	.15***	.00
Hostility	2.32	0.73	.14***	.30****	.12**	.11**
Social support	4.16	0.56	-.14***	-.14***	.02	-.01
Health						
Any physical health issues	63%		.09**	.09**	.08*	.09**
K10 mental disorder	19%		.11**	.16***	.03	.05
PTSD	8%		.11**	.16***	.13***	.09**

Background	Correlations of Background With HVHP Scales					
	Mean	SD	Injection Risk	Condom Attitudes	Sex Risk	AIDS Concern
Criminal thinking						
Entitlement	1.70	0.53	.07	.13***	.03	-.03
Justification	1.90	0.59	.07	.20***	.06	.07
Personal irresponsibility	1.99	0.62	.07	.22***	.02	.05
Rationalization	2.74	0.77	.05	.26***	.06	.05
Cold heartedness	2.25	0.58	.10**	-.04	.01	-.09**
Power orientation	2.26	0.71	.14***	.30***	.12**	.05
Drug use						
Drug use severity	4.33	2.93	.27***	.15***	.15***	.13***
Drug use frequency	3.78	1.42	.18***	.07	.28***	.01

Note. $n = 565$. HVHP = HIV/Hepatitis Risk Assessment; K10 = Kessler Psychological Distress Scale; PTSD = post-traumatic stress disorder.

[†] $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

**** $p < .0001$.

Table 4

Females—Correlations of HVHP Scales With Background and Other Measures: Motivation, Psychological Functioning, Mental Health, Criminal Thinking, Social Functioning, Drug Use, and Physical Health.

Correlations of Background With HVHP Scales						
Background	Mean	SD	HVHP Scales			
			Injection Risk	Condom Attitudes	Sex Risk	AIDS Concern
Demographics						
White	62%		.03	.15***	-.13***	-.13***
Black	18%		-.13***	-.11**	.12**	.05
Age	33.8	9.9	-.08	-.09**	-.07	-.00
Motivation						
Problem recognition	3.79	0.89	.28***	.13***	.16***	.32***
Desire for help	4.26	0.71	.15***	.09**	.14***	.25***
Treatment readiness	3.87	0.81	.05	-.02	.12**	.19***
Psychological functioning						
Self-esteem	3.31	0.90	-.17***	-.20***	-.15***	-.27***
Depression	2.87	0.86	.11**	.22***	.12**	.20***
Anxiety	3.17	0.96	.13***	.10**	.10**	.20***
Decision making	3.47	0.60	-.16***	-.20***	-.13***	-.14***
Expect drug free	4.02	0.81	-.19***	-.24***	-.17***	-.27***
Social functioning						
Risk taking	3.33	0.82	.24***	.15***	.17***	.22***
Hostility	2.50	0.86	.14***	.19***	.26***	.23***
Social support	4.20	0.64	-.18***	-.06	-.18***	-.20***
Health						
Any physical health issues	81%		-.03	.00	.07	.07
K10 mental disorder	60%		.12**	.16***	.09**	.12**
PTSD	28%		.15***	.04	.12**	.14***

Correlations of Background With HVHP Scales						
Background	Mean	SD	HVHP Scales			
			Injection Risk	Condom Attitudes	Sex Risk	AIDS Concern
Criminal thinking						
Entitlement	1.68	0.53	.11**	.10**	.15***	.10**
Justification	2.10	0.67	.14***	.21***	.21***	.24***
Personal irresponsibility	1.97	0.58	.09**	.08*	.17***	.14***
Rationalization	2.76	0.76	.05	.23***	.11**	.06
Cold heartedness	1.95	0.56	.03	-.11**	.03	.02
Power orientation	2.31	0.76	.12**	.13***	.24***	.16***
Drug use						
Drug use severity	5.65	2.86	.25***	.16***	.20***	.32***
Drug use frequency	4.31	1.20	.16***	.12**	.23***	.19***

Note. $n = 491$. HVHP = HIV/Hepatitis Risk Assessment; K10 = Kessler Psychological Distress Scale; PTSD = post-traumatic stress disorder.

* $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

**** $p < .0001$.