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The TCU Drug Screen 5: Identifying Justice-involved Individuals with Substance Use Disorders

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Abstract

The TCU Drug Screen II, a widely used instrument for identifying substance use problems, was originally developed based on Diagnostic and Statistical Manual of Mental Disorders III-R criteria. In 2013, the American Psychiatric Association revised the criteria and classification scheme for substance use disorders (SUDs) with the publication of the DSM-5. Subsequently, the TCU Drug Screen was modified to reflect the updated DSM-5. The current study examines the concordance of the TCU Drug Screen II and TCU Drug Screen 5 with adult and juvenile justice-involved samples. Both versions were administered to 305 adult male and 310 juvenile male justice-involved clients as part of standard intake procedures. Results revealed a high level of agreement between the two versions; however, the TCU Drug Screen 5 detected significantly more cases of SUDs, the majority of which corresponded to a mild SUD. Results documented appropriate discrimination in meeting diagnostic thresholds among both age groups, with fewer adolescents identified as having a disorder. Overall, the results suggest that the TCU Drug Screen 5 is comparable to the TCU Drug Screen II with the added potential benefit of DSM-5 conformity and severity specifiers.

Keywords

TCU Drug Screen; substance use; DSM-5; screening; criminal justice; juvenile justice

Developed nearly two decades ago, the TCU Drug Screen II (TCU DS II; originally TCU Drug Dependence Screen) is used in numerous criminal justice and community settings as a screener to identify individuals with substance use problems who may benefit from treatment services (K. Knight, Simpson, & Hiller, 2002). Identifying substance use is a critical first step in the treatment continuum. When used in conjunction with collaborative sources of information (e.g., biological indicators), the TCU Drug Screen can serve as an important tool in the process of identifying need for individualized treatment services and appropriate level of care (Center for Substance Abuse Treatment, 2013; Guastaferro, 2012; Gunter & Antoniak, 2010; National Institute on Drug Abuse, 2006).

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Studies consistently have demonstrated the positive psychometric properties of the TCU DS II. Results from studies of adults involved in the criminal justice system document excellent reliability and validity (Broome, Knight, Joe, & Simpson, 1996; K. Knight, Simpson, & Morey, 2000; Peters, Greenbaum, Edens, Carter, & Ortiz, 1998; Peters, Greenbaum, Steinberg, Carter, Ortiz, Fry et al., 2000; Shearer & Carter, 1999). Research on the instrument's concurrent and predictive validity provide further evidence of its utility (Kelly & Welsh, 2008; Pankow, Simpson, Joe, Rowan-Szal, Knight, & Meason, 2012; Ruiz, Cox, Magyar, & Edens, 2014).

Based on this evidence and because it is among tools recommended by the Substance Abuse and Mental Health Services Administration (Center for Substance Abuse Treatment, 2013; National Drug Court Institute, 2008; National Institute on Drug Abuse, 2006), the TCU DS II has been adopted by national, state and local agencies to screen individuals for substance use problems (Welsh, 2007; Welsh, Zakac, & Bret Bucklen, 2014). It is typically incorporated into a larger battery of instruments to assess client needs and functioning (Farabee, Knight, Garner, & Calhoun, 2007; D. K. Knight, Becan, Landrum, Joe, & Flynn, 2014; Simpson, Joe, Knight, Rowan-Szal, & Gray, 2012), and is used across a variety of settings and with diverse populations, such as inmates (Welsh & McGrain, 2008; Yang, Knight, Joe, Rowan, Lehman, & Flynn, 2015), individuals in community corrections, parolees (Blasko, Friedmann, Rhodes, & Taxman, 2015), and justice-involved females (K. Houser & Belenko, 2015; K. A. Houser & Welsh, 2014; Staton-Tindall, Frisman, Lin, Leukefeld, Oser, Havens et al., 2011). More recently, the TCU DS II has been used to assess substance use problems among adolescents (D. K. Knight et al., 2014; Nyamathi, Hudson, Greengold, Slagle, Marfisee, Khalilifard et al., 2010), individuals at risk for HIV (Surratt, Kurtz, Chen, & Mooss, 2012), in multiple studies of the HIV treatment cascade (Chandler, Gordon, Kruszka, Strand, Altice, Beckwith et al., 2017), and to identify a need for substance use treatment services among vulnerable populations (Buttram, Surratt, & Kurtz, 2014; Cooper, Bonney, Ross, Karnes, Hunter-Jones, Kelley et al., 2013; Myers, 2013; Myers, Louw, & Pasche, 2010).

While the evidence-base is mounting, it is important to note that the TCU DS II is based on the Diagnostic and Statistical Manual (DSM) of Mental Disorders III-R criteria for substance use dependence (American Psychiatric Association, 1987). In 2013, the American Psychiatric Association published the DSM-5, which included a new category—substance use disorder (SUD), eliminated abuse and dependence, and introduced SUD severity specifications. To keep in step with these DSM changes, the TCU DS II was revised to coincide with DSM-5 formulations, and the newer version was named the TCU Drug Screen 5 (TCU DS 5).

In comparison with its predecessor, the TCU DS 5 is designed to provide greater levels of diagnostic refinement when screening for substance use problems. The TCU DS II classifies individuals into one of two categories corresponding with DSM-III-R diagnosis of "dependent" (3 or more symptoms) versus "not dependent" (0 to 2 symptoms). While this information is helpful in identifying a need for further assessment and possibly treatment, it does not differentiate between varying levels of severity among those who report drug use problems. To this end, the TCU DS 5 classifies individuals into one of four severity levels

within the "disorder" category: none (0–1 symptoms), mild (2–3 symptoms), moderate (4–5 symptoms) or severe (6 or more symptoms) (American Psychiatric Association, 2013).

The purpose of this study is to compare the psychometric properties of the TCU DS 5 to its predecessor and to determine the ability of the TCU DS 5 to identify substance use disorder severity levels among adult and juvenile males involved in the criminal justice system. The rationale and analytic approach builds upon the previous research of Mohler and colleagues, comparing the DSM-IV with the DSM 5 for identifying alcohol use disorders (AUD) (Mohler-Kuo, Foster, Gmel, Dey, & Dermota, 2015). Specific study objectives are to (1) examine concordance between the TCU DSs II and 5, (2) determine whether the TCU DS 5 identifies more individuals as having a drug use problem (as a result of including disorder with a "mild severity"), and (3) examine differences between adults and juveniles in meeting diagnostic thresholds and patterns of symptom endorsement.

Method

Participants

The adult sample included 305 male prisoners from a large northeastern state. Participant mean age was 34 years ($SD = 10.51$). Over half (52%) identified as white, 40% as African American, and 7% as Hispanic. The juvenile sample included 312 detainees in two male-only Midwestern centers. Participant age ranged from 13 to 20 years old ($M = 16.67$, $SD = 1.33$); 63% of the sample identified as African American, 23% as white, and 14% as Hispanic. Two participants were excluded from analyses due to missing data on the TCU DS II or the TCU DS 5.

Procedure

Institutional Review Board approval was obtained and data use agreements were executed between the research center and each state agency. Data were collected from the adult and juvenile participants at correctional facilities in two different states. For the adult sample, all new admissions between October and November 2014 completed TCU DS forms during the intake process. For the juvenile sample, all new admissions between January and May 2016 completed TCU DS forms during the intake process. Form administration was counterbalanced, with individuals completing both the TCU DS II and TCU DS 5 during a single proctored administration. The research center provided copies of the forms at no cost to the agency. A data sharing agreement was enacted between the agency and research center and data were shared using a secure data service. Agency staff removed all identifying information from datasets prior to submission to the research center for secondary analysis.

Measures

The TCU DS is an evidence-based screener used with both adults and adolescents (D. K. Knight et al., 2014; K. Knight et al., 2002). Participants respond to a series of yes/no questions with respect to the previous 12 months (before being incarcerated, if applicable). It is designed to be administered individually or in small groups, with items read aloud by a proctor as the respondent follows along. The TCU DS II is comprised of 15 items and produces a single score ranging from 0 to 9. A value greater than 3 indicates relatively

severe drug-related problems or "dependence," corresponding to DSM-III-R criteria (American Psychiatric Association, 1987). The TCU DS 5 is comprised of 17 items and produces a single score ranging from 0 to 11 ["yes" to either item 10a or 10b (tolerance criteria) and either 11a or 11b (withdrawal criteria) each counts as 1]. A score of 0–1 indicates no SUD; 2–3 represents mild disorder, 4–5 moderate disorder, and 6 or more severe disorder, corresponding to DSM-5 criteria for SUDs (American Psychiatric Association, 2013). Both versions include additional questions regarding monthly, weekly, and daily use of specific substances. Demographic variables included age (adult and juvenile) and race.

Analytic Plan

The relationship between the two versions was examined using a Pearson product-moment correlation. Cross tabulations were used to compare TCU DS II and 5 classifications, and McNemar's was used to test for a significant difference in classification rates. Because the TCU DS II has a dichotomous diagnostic scheme (no diagnosis or a relatively severe drug-problem) and the TCU DS 5 has four diagnostic categories specifying severity (no diagnosis, mild disorder, moderate disorder, and severe disorder), TCU DS 5 outcomes were collapsed so that McNemar's test could be performed: TCU DS 5 "no diagnosis" (score of 0–1) versus TCU DS 5 "diagnosis" (score of 2 or greater). Kappa coefficients were calculated to measure the degree of chance-corrected agreement between the TCU DS II and 5.

Pearson product-moment correlations were used to examine the relationship between age and continuous scores on both screeners within both adult and juvenile samples. Chi-square tests were performed to test the distribution of TCU DS II and TCU DS 5 classifications between age groups (juvenile and adult) and across race-ethnicity (white, African-American, and Hispanic) within each age group. McNemar's was used to test for significant differences in classification rates between the two screeners for whites and non-whites within each age group. Two proportion *z*-tests were conducted to determine if the rates of "new" SUD classifications in white and non-whites within each age group differed.

Results

For adults, the average continuous scores of the TCU DS II and TCU DS 5 were 3.85 (SD = 3.17) and 4.53 (SD = 3.86), respectively; for juveniles, the average continuous scores were 2.76 (SD = 3.21) and 3.17 (SD = 3.86), respectively. Results revealed a statistically significant, strong positive correlation between the continuous measures in both adult ($r = 0.95$, $N = 305$, $p \leq 0.001$, $R^2 = 0.90$) and juvenile ($r = 0.95$, $N = 305$, $p \leq 0.001$, $R^2 = .90$) samples. The TCU DS 5 classification rates for both adults and juveniles are summarized in Table 1.

Among adults, the drug that reportedly causing the most serious problem during the last 12 months was alcohol (22.3%), followed by marijuana (21.0%), and heroin (14.8%). Despite reporting alcohol and marijuana as being the most problematic, only 9.2% of adults reported daily alcohol use in the last 12 months compared to 21.3% who reported daily marijuana use. Daily heroin use was reported among 10.2% of adults. Juveniles, by contrast, most commonly reported that marijuana (34.2%) caused the most serious problem followed by

alcohol (4.8%), and synthetic marijuana (3.2%). Among juveniles, 42.9% reported daily marijuana use, 4.8% reported daily alcohol use, and 3.9% reported daily synthetic marijuana use. Only one individual (0.3%) reported using heroin between one and five times per week.

Cross tabulations were conducted comparing TCU DS II SUD disorder (0 = score of less than 3, 1 = score of 3 or greater) to any TCU DS 5 disorder (0 = score of less than 2, 1 = score of 2 or greater; see Table 2). McNemar's test revealed that the TCU DS 5 identified significantly more cases of SUD (compared to the II) for both the adult [χ^2 (1, N = 305) = 30.42, $p \leq 0.001$] and juvenile [χ^2 (1, N = 310) = 30.12, $p \leq 0.001$] samples. With adults, the TCU DS 5 identified 36 participants as having some drug-related problem who were identified by the TCU DS II as having no drug-related problem. Of these "new" SUD disorder cases, 30 (83%) were mild SUDs, four (11%) were moderate SUDs, and two (5.6%) were considered severe SUDs. Only two participants identified as having a drug-related problem by the TCU DS II were not identified by the TCU DS 5. Similar results were found in the juvenile sample. The TCU DS 5 identified 33 participants who were identified by the TCU DS II as having no drug-related problem. Of these 33 cases, 28 (85%) were mild SUDs, four were moderate SUDs (12%), and one (3%) was considered severe. Only one participant identified by the TCU DS II was not identified by the TCU DS 5. Cohen's Kappa revealed a good agreement when TCU DS 5 positive classifications were collapsed into one category. This was true for both adults [$\kappa = 0.73$, 95% CI (0.65, 0.81), $p \leq 0.001$] and juveniles [$\kappa = 0.78$, 95% CI (0.71, 0.85), $p \leq 0.001$].

To test if the TCU DS II and 5 behaved similarly in relation to participant age for both samples, Pearson product-moment correlations between age and the continuous scores of each screener were computed. The results revealed that neither the TCU DS II nor the TCU DS 5 were significantly correlated with participant age in both the adult sample (TCU DS II: $r = 0.04$, $N = 305$, $p = 0.48$; TCU DS 5: $r = 0.07$, $N = 305$, $p = 0.23$) and the juvenile sample (TCU DS II: $r = 0.05$, $N = 305$, $p = 0.37$; TCU DS 5: $r = 0.04$, $N = 305$, $p = 0.50$).

To test if the two screener versions behaved similarly for both age groups, chi-square tests were performed. The proportions of diagnostic classifications made by both the TCU DS II and TCU DS 5 of either some or no SUD were compared across both age groups. Adults exceeded the expected counts for positive SUDs on both the TCU DS II [χ^2 (1, N = 615) = 28.73, $p \leq 0.001$] and 5 [χ^2 (1, N = 615) = 32.01, $p \leq 0.001$], indicating a higher prevalence of SUD, as classified by both screeners, amongst adults compared to juveniles.

To test if both the TCU DS II and 5 had similar classification rates across racial-ethnic groups (white, African-American, and Hispanic), chi-square tests were performed. The proportions of diagnostic classifications made by both screeners of either some or no SUD were compared across the three groups. Results of the adult sample revealed that classifications made by both the TCU DS II [χ^2 (2, N = 305) = 14.55, $p = 0.002$] and TCU DS 5 [χ^2 (2, N = 305) = 8.09, $p = 0.04$] were not distributed as expected across the racial-ethnic groups; however, results were consistent for both versions of the screener. Whites significantly exceeded the expected counts for positive SUDs, suggesting that these results may indicate actual group differences and not just a bias in the drug screen classifications.

This pattern of results was also present in the juvenile sample [TCU DS II: χ^2 (2, N = 310) = 7.69, p = 0.02; TCU DS 5: χ^2 (2, N = 310) = 7.83, p = 0.02].

Next, cross tabulations were conducted comparing screener indicators of either SUD or no SUD for both white and non-whites. McNemar's test revealed that the TCU DS 5 identified significantly more cases meeting diagnostic criteria compared to the TCU DS II for both whites [χ^2 (1, N = 159) = 12.00, $p \leq 0.001$] and non-whites [χ^2 (1, N = 146) = 18.62, $p \leq 0.001$] in the adult sample. The results of the two proportion z-test revealed that there were significantly more new cases (as a proportion of the sample) for non-whites than there were for whites. Sixteen percent of non-whites were classified as having a SUD by the TCU DS 5 but not by TCU DS II, compared to only eight percent of whites (z = 2.40, $p > 0.05$). In the juvenile sample, both whites [χ^2 (1, N = 72) = 8.00, p = 0.008] and non-whites [χ^2 (1, N = 238) = 22.15, $p \leq 0.001$] were identified more often by the TCU DS 5 compared to the TCU DS II; however, proportional differences in new cases from the two versions were not significantly different when comparing whites to non-whites ($z = -0.15$, $p > 0.10$).

To examine symptom endorsement patterns within various diagnostic categories, responses for each item on the TCU DS 5 were examined. For adults in all three SUD categories (mild, moderate, or severe), the most commonly reported problem was using larger amounts of drugs or using them for a longer time than planned or intended (see Table 3). However, there was a different pattern of results amongst juveniles. For juveniles with a mild SUD, the most commonly reported problem was spending a lot of time getting, using, or recovering from drugs. For those with a moderate SUD, the most commonly reported problem was using larger amounts of drugs or using them for a longer time than planned or intended. For juveniles with a severe SUD, the most commonly reported problem was craving (see Table 4).

Discussion

The current study examines the concordance of the TCU DS II and 5, and establishes supporting psychometric properties of the TCU DS 5 when administered to justice-involved clients. Results document high concordance between the updated and previous versions of the instrument, indicating that the TCU DS 5 performs as well as its predecessor with adult and juvenile males.

Consistent with prior research on identification of AUD (Mohler-Kuo et al., 2015), the TCU DS 5 identified a larger number of individuals with SUDs than the TCU DS II. This is likely due to the inclusion of the "mild disorder" category, which was created when the threshold for problematic use was lowered to a minimum of 2 symptoms and terminology was changed to "disorder" (American Psychiatric Association, 2013). Indeed, 83% of newly identified cases in adults (SUDs identified by the TCU DS 5 but not the II) and 85% of newly identified cases in juveniles were for a mild disorder. Thus, the TCU DS 5 provides a greater opportunity than its predecessor to identify individuals at risk for developing more severe substance use problems. This has clinical implications, in that a more sensitive instrument is more likely to identify individuals who are engaging in experimental use or may be underreporting. The specificity of severity level can help staff determine appropriate

action. TCU DS 5 classifications can be combined with corroborating evidence (e.g., biological indicators, parent report) and used to inform referral to comprehensive assessment and/or needed services (Belenko, Knight, Wasserman, Dennis, Wiley, Taxman et al., 2017). For example, individuals scoring in the mild range with no corroborating evidence of substance use may benefit from prevention or early intervention. Individuals with moderate to severe use would benefit from comprehensive assessment to determine the extent of substance use and the presence of corresponding issues (e.g., family, mental health); together, this information can inform referral to appropriate level of care (American Society of Addiction Medicine, 2013).

Results document the appropriateness of the TCU DS 5 for use with juveniles as well as adults. Although findings are consistent with prior research documenting lower rates of SUDs among adolescents (Center for Behavioral Health Statistics and Quality, 2015), the TCU DS 5 discriminates between adolescents with no disorder and various levels of severity as well as it does with adults. Clinicians administering the instrument with juveniles should be aware that more youth with a disorder will likely fall into “mild” or “moderate” severity levels (rather than “severe”), and symptoms that drive classification will likely differ from those typically seen with adults. For instance, the most common symptom for adults with mild, moderate, or severe disorders was “using larger amounts of drugs or using them for a longer time than planned or intended.” For juveniles, the most common symptoms differed depending on the level of severity: mild—“spending a lot of time getting, using, or recovering from drugs;” moderate—“using larger amounts of drugs or using them for a longer time than planned or intended;” and severe—“craving.”

Finally, in comparison with the TCU DS II, the TCU DS 5 identified significantly more new SUDs for non-white adults than it did for white adults. Given that the overwhelming majority of new cases were categorized as mild SUDs, this finding is consistent with previous research demonstrating an elevated 12-month prevalence rate for mild SUD for non-whites compared to whites (Grant, Saha, Ruan, Goldstein, Chou, Jung et al., 2016). In short, the use of the TCU DS 5 will identify more individuals (particularly non-whites) who may need and benefit from treatment.

While this study documents the convergent validity of the TCU DS 5 by comparing it to its well-established predecessor, limitations in sampling (male only, small number of agencies, recruitment from justice settings) constrain the generalizability of findings. Furthermore, staff responsible for making service referral decisions should interpret “mild” scores with caution, as they could reflect underreporting and/or experimental use. Additional research is needed to document the appropriateness of the TCU DS 5 with females and individuals who are not being detained in locked, secure settings. Future research should also examine the TCU DS 5’s predictive validity, particularly with regard to the identification of substance use disorders using comprehensive, clinical diagnostic assessment procedures.

Conclusion

In conclusion, recent changes in the DSM criteria for SUDs have resulted in refinements to the identification of individuals with differing levels of substance use service needs. The

major contribution of the new classification system is that it now allows for the specification of three severity levels associated with substance use disorders. Because identification of substance use severity and need for treatment services is a prerequisite for determining appropriate level of care and because current best practices for determining level of care embrace the use of DSM-5 diagnostic criteria (American Society of Addiction Medicine, 2013), establishing the psychometric properties of the updated TCU DS 5 is important. As this study demonstrates, the clinical advantages of the TCU DS 5 include its correspondence directly with DSM-5 criteria for SUDs, its ability to provide added information regarding problem severity (mild, moderate or severe SUDs), the capacity to identify individuals who may not have been categorized using the TCU DS II, and its appropriateness for both justice-involved adult and juvenile males.

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Table 1

TCU Drug Screen 5 Classification Rates in the Adult and Juvenile Samples

	No SUD	*Mild SUD*	*Moderate SUD*	*Severe SUD*
Adult Sample	90	56	42	117
	29.5%	18.4%	13.8%	38.4%
	(24.3–34.7)	(13.9–22.8)	(9.8–17.7)	(32.8–43.9)
Juvenile Sample	161	41	27	81
	51.9%	13.2%	8.7%	26.1%
	(46.3–57.6)	(9.4–17.1)	(5.5–11.9)	(21.1–31.1)

Table 2

TCU Drug Screens II and 5 Classifications for the Adult and Juvenile Samples

			TCU Drug Screen II		
			No SUD	***SUD***	***Total***
Adult Sample	TCU Drug Screen 5	No SUD	88 97.8% (94.6–100.0)	2 2.2% (0.0–5.4)	90
		SUD	36 16.7% (11.7–21.8)	179 83.3% (78.2–88.3)	215
		Total	124 40.7% (35.0–46.3)	181 59.3% (53.7–65.0)	305
Juvenile Sample	TCU Drug Screen 5	No SUD	160 99.4% (98.1–100.0)	1 0.6% (0.0–1.9)	161
		SUD	33 22.1% (15.4–28.9)	116 77.9% (71.1–84.6)	149
		Total	193 62.3% (56.8–67.8)	117 37.7% (32.2–43.2)	310

Table 3

Twelve-month prevalence of SUD criteria as evaluated by the TCU Drug Screen 5 in the adult sample

	All *(n = 305)*	*No TCU Drug Screen II SUD (n = 124)*	*TCU Drug Screen II SUD (n = 181)*	*No TCU Drug Screen 5 SUD (n = 90)*	*TCU Drug Screen 5 Mild SUD (n = 56)*	*TCU Drug Screen 5 Moderate SUD (n = 42)*	*TCU Drug Screen 5 Severe SUD (n = 117)*	*Both Positive (n = 179)*	*Both Negative (n = 88)*	*TCU Drug Screen 5 Only (n = 36)*
TCU DS 5 SUD	70.5	29.0	98.9	0.0	100	100	100	100	0.0	100
Role impairment	24.3	2.4	39.2	0.0	7.1	11.9	55.6	39.7	0.0	8.3
Hazardous use	43.0	12.9	63.5	2.2	26.8	57.1	76.9	64.2	2.3	38.9
Craving *	43.6	7.3	68.5	3.3	25.0	38.1	85.5	69.3	3.4	16.7
Social problems	50.5	14.5	75.1	2.2	28.6	59.5	94.9	76.0	2.3	44.4
Tolerance	52.1	13.7	78.5	3.3	42.9	54.8	93.2	78.8	2.3	41.7
Withdrawal	36.4	4.0	58.6	1.1	10.7	26.2	79.5	59.2	1.1	11.1
Larger/longer	59.3	16.9	88.4	7.8	57.1	69.0	96.6	88.8	6.8	41.7
Quit/control	48.2	11.3	73.5	3.3	32.1	54.8	88.0	74.3	3.4	30.6
Much time spent	41.0	6.5	64.6	1.1	14.3	33.3	87.2	65.4	1.1	19.4
Activities given up	24.9	3.2	39.8	0.0	5.4	11.9	58.1	40.2	0.0	11.1
Use despite harm	31.1	1.6	51.4	0.0	5.4	11.9	74.4	52.0	0.0	5.6

* not assessed with TCU Drug Screen II

Table 4

Twelve-Month Prevalence of SUD Criteria as Evaluated by the TCU Drug Screen 5 in the Juvenile Sample

	All *(n = 310)*	*No TCU Drug Screen II SUD (n = 193)*	*TCU Drug Screen II SUD (n = 117)*	*No TCU Drug Screen 5 SUD (n = 161)*	*TCU Drug Screen 5 Mild SUD (n = 41)*	*TCU Drug Screen 5 Moderate SUD (n = 27)*	*TCU Drug Screen 5 Severe SUD (n = 81)*	*Both Positive (n = 116)*	*Both Negative (n = 160)*	*TCU Drug Screen 5 Only (n = 33)*
TCU DS 5 SUD	48.1	17.1	99.1	0.0	100	100	100	100	0.0	100
Role impairment	22.6	.05	59.0	0.0	2.4	25.9	76.5	59.5	0.0	3.0
Hazardous use	21.9	3.1	53.0	0.6	4.9	14.8	75.3	53.4	0.6	15.2
Craving *	31.3	5.7	73.5	1.9	22.0	37.0	92.6	74.1	1.9	24.2
Social problems	30.3	6.2	70.1	1.9	22.0	59.3	81.5	70.7	1.9	27.3
Tolerance	31.9	6.7	73.5	2.5	34.1	48.1	84.0	74.1	2.5	27.3
Withdrawal	26.5	1.6	67.5	0.0	4.9	25.9	90.1	68.1	0.0	9.1
Larger/longer	33.9	10.9	71.8	4.3	39.0	66.7	79.0	72.4	4.4	42.4
Quit/control	30.3	10.4	63.2	3.7	34.1	40.7	77.8	63.8	3.8	42.4
Much time spent	36.5	11.9	76.9	5.6	48.8	63.0	82.7	77.6	5.6	42.4
Activities given up	26.1	4.1	62.4	1.2	9.8	29.6	82.7	62.9	1.3	18.2
Use despite harm	25.8	3.6	62.4	0.0	9.8	33.3	82.7	62.9	0.0	21.2

* not assessed with TCU Drug Screen II